November 8, 2002

***RE: Indiana Municipal Power Agency 095-15883-00051***

TO: Interested Parties / Applicant

FROM: Paul Dubenetzky
Chief, Permits Branch
Office of Air Quality

# Notice of Decision: Approval - Effective Immediately

Please be advised that on behalf of the Commissioner of the Department of Environmental Management, I have issued a decision regarding the enclosed matter. Pursuant to IC 13-15-5-3, this permit is effective immediately, unless a petition for stay of effectiveness is filed and granted according to IC 13-15-6-3, and may be revoked or modified in accordance with the provisions of IC 13-15-7-1.

If you wish to challenge this decision, IC 4-21.5-3 and IC 13-15-6-1 require that you file a petition for administrative review. This petition may include a request for stay of effectiveness and must be submitted to the Office of Environmental Adjudication, ISTA Building, 150 W. Market Street, Suite 618, Indianapolis, IN 46204, **within (18) eighteen days of the mailing of this notice**. The filing of a petition for administrative review is complete on the earliest of the following dates that apply to the filing:

(1) the date the document is delivered to the Office of Environmental Adjudication (OEA);
(2) the date of the postmark on the envelope containing the document, if the document is mailed to OEA by U.S. mail; or
(3) the date on which the document is deposited with a private carrier, as shown by receipt issued by the carrier, if the document is sent to the OEA by private carrier.

The petition must include facts demonstrating that you are either the applicant, a person aggrieved or adversely affected by the decision or otherwise entitled to review by law. Please identify the permit, decision, or other order for which you seek review by permit number, name of the applicant, location, date of this notice and all of the following:

(1) the name and address of the person making the request;
(2) the interest of the person making the request;
(3) identification of any persons represented by the person making the request;
(4) the reasons, with particularity, for the request;
(5) the issues, with particularity, proposed for consideration at any hearing; and
(6) identification of the terms and conditions which, in the judgment of the person making the request, would be appropriate in the case in question to satisfy the requirements of the law governing documents of the type issued by the Commissioner.

If you have technical questions regarding the enclosed documents, please contact the Office of Air Quality, Permits Branch at (317) 233-0178. Callers from within Indiana may call toll-free at 1-800-451-6027, ext. 3-0178.

Enclosure

FNPER.wpd 8/21/02

*Frank O'Bannon*
Governor

*Lori F. Kaplan*
Commissioner

100 North Senate Avenue
P. O. Box 6015
Indianapolis, Indiana 46206-6015
(317) 232-8603
(800) 451-6027
www.state.in.us/idem

November 8, 2002

Ms. Gayle Mayo, VP
Indiana Municipal Power Agency
11610 N. College Avenue
Carmel, Indiana 46032

Re: 095-15883-00051
First Significant Source Modification to:
Part 70 permit No.: T095-12389-00051

Dear Ms. Mayo:

Indiana Municipal Power Agency (IMPA) was issued Part 70 operating permit T095-12389-00051 on December 7, 2001 for the operation of a gas turbine electric generating plant. An application to modify the source was received on April 19, 2002. Pursuant to 326 IAC 2-7-10.5 the following emission units are approved for construction at the source:

One (1) 84 megawatt (MW) simple cycle gas turbine, using natural gas as the primary fuel and #2 fuel oil as backup fuel, identified as T-3, using water injection for NOx control when fuel oil is used, and exhausting to stack S/V 5. When using natural gas, T-3 has a maximum heat input capacity of 858 MMBtu/hr. When using #2 fuel oil, T-3 has a maximum heat input capacity of 850 MMBtu/hr;

The following construction conditions are applicable to the proposed project:

General Construction Conditions

1. The data and information supplied with the application shall be considered part of this source modification approval. Prior to any proposed change in construction which may affect the potential to emit (PTE) of the proposed project, the change must be approved by the Office of Air Quality (OAQ).

2. This approval to construct does not relieve the permittee of the responsibility to comply with the provisions of the Indiana Environmental Management Law (IC 13-11 through 13-20; 13-22 through 13-25; and 13-30), the Air Pollution Control Law (IC 13-17) and the rules promulgated thereunder, as well as other applicable local, state, and federal requirements.

3. Effective Date of the Permit
Pursuant to IC 13-15-5-3, this approval becomes effective upon its issuance.

4. Pursuant to 326 IAC 2-1.1-9 and 326 IAC 2-7-10.5(i), the Commissioner may revoke this approval if construction is not commenced within eighteen (18) months after receipt of this approval or if construction is suspended for a continuous period of one (1) year or more.

5. All requirements and conditions of this construction approval shall remain in effect unless modified in a manner consistent with procedures established pursuant to 326 IAC 2.

6. Pursuant to 326 IAC 2-7-10.5(l) the emission units constructed under this approval shall not be placed into operation prior to revision of the source's Part 70 Operating Permit to incorporate the required operation conditions.

This significant source modification authorizes construction of the new emission units. Operating conditions shall be incorporated into the Part 70 operating permit as a significant permit modification in accordance with 326 IAC 2-7-10.5(l)(2) and 326 IAC 2-7-12. Operation is not approved until the significant permit modification has been issued.

The source may begin construction when the source modification has been issued. The source must comply with the requirements of 326 IAC 2-7-10.5(l)(2) and 326 IAC 2-7-12 before operation of any of the proposed emission units can begin.

Pursuant to Contract No. A305-0-00-36, IDEM, OAQ has assigned the processing of this application to Eastern Research Group, Inc., (ERG). Therefore, questions should be directed to Bob Sidner, ERG,1600 Perimeter Park Drive, Morrisville, North Carolina 27560, or call (703) 633-1701 to speak directly to Mr. Sidner. Questions may also be directed to Duane Van Laningham at IDEM, OAQ, 100 North Senate Avenue, P.O. Box 6015, Indianapolis, Indiana, 46206-6015, or call (800) 451-6027, press 0 and ask for Duane Van Laningham, or extension 3-6878, or dial (317) 233-6878.

Sincerely,

Original Signed by Paul Dubenetzky
Paul Dubenetzky, Chief
Permits Branch
Office of Air Quality

Attachments

ERG/BS

cc: File - Madison County
Madison County Health Department
Air Compliance Section Inspector - Warren Greiling
Compliance Data Section - Karen Nowak
Administrative and Development - Sara Cloe
Technical Support and Modeling - Michele Boner

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
*We make Indiana a cleaner, healthier place to live.*

*Frank O'Bannon*
Governor

*Lori F. Kaplan*

100 North Senate Avenue
P. O. Box 6015
Indianapolis, Indiana 46206-6015
(317) 232-8603
(800) 451-6027
www.state.in.us/idem

# PART 70 OPERATING PERMIT
# OFFICE OF AIR QUALITY
## and the
## Anderson Office of Air Management

**Indiana Municipal Power Agency**
**Anderson Gas Turbine Generating Facility**
**6035 Park Road**
**Anderson, Indiana 46011**

(herein known as the Permittee) is hereby authorized to operate subject to the conditions contained herein, the source described in Section A (Source Summary) of this permit.

This permit is issued in accordance with 326 IAC 2 and 40 CFR Part 70 Appendix A and contains the conditions and provisions specified in 326 IAC 2-7 as required by 42 U.S.C. 7401, et. seq. (Clean Air Act as amended by the 1990 Clean Air Act Amendments), 40 CFR Part 70.6, IC 13-15 and IC 13-17.

| Operation Permit No.: T095-12389-00051 | |
|---|---|
| Issued by:<br>Janet G. McCabe, Assistant Commissioner<br>Office of Air Quality | Issuance Date: December 7, 2001<br><br>Expiration Date: December 7, 2006 |

| First Significant Source Modification:<br>SSM: 095-15883-00051 | Pages affected: |
|---|---|
| Issued by: Original Signed by Paul Dubenetzky<br>Paul Dubenetzky, Branch Chief<br>Office of Air Quality | Issuance Date: November 8, 2002<br><br>Expiration Date: December 7, 2006 |

## SECTION A SOURCE SUMMARY

This permit is based on information requested by the Indiana Department of Environmental Management (IDEM), Office of Air Quality (OAQ) and the Anderson Office of Air Management (AOAM). The information describing the source contained in conditions A.1 through A.3 is descriptive information and does not constitute enforceable conditions. However, the Permittee should be aware that a physical change or a change in the method of operation that may render this descriptive information obsolete or inaccurate may trigger requirements for the Permittee to obtain additional permits or seek modification of this permit pursuant to 326 IAC 2, or change other applicable requirements presented in the permit application.

### A.1 General Information [326 IAC 2-7-4(c)] [326 IAC 2-7-5(15)]

The Permittee owns and operates a gas turbine electric generating plant.

| | |
|---|---|
| Responsible Official: | Ms.Gayle Mayo, Vice President Planning and Eng. |
| Source Address: | 6035 Park Road, Anderson, Indiana 46011 |
| Mailing Address: | 11610 North College Avenue, Carmel, Indiana 46032 |
| Contact Person: | Mr. Jack Alvey |
| Phone Number: | (317) 575-9955 |
| SIC Code: | 4911 |
| County Location: | Madison |
| Source Location Status: | Attainment for all criteria pollutants |
| Source Status: | Part 70 Permit Program pursuant to the Acid Rain Program<br>Minor Source under PSD Rules<br>Minor Source, Section 112 of the Clean Air Act |

### A.2 Emission Units and Pollution Control Equipment Summary [326 IAC 2-7-4(c)(3)] [326 IAC 2-7-5(15)]

This stationary source consists of the following emission units and pollution control devices:

(a) Two (2) 38.7 megawatt (net) simple cycle gas turbines using natural gas as the primary fuel with No. 2 fuel oil used as a backup identified as T1 and T2, and using a water injection system as control, with each turbine exhausting to stacks, identified as S/V 3 and S/V 4, respectively.

(b) One (1) 84 megawatt (MW) simple cycle gas turbine, using natural gas as the primary fuel and #2 fuel oil as backup fuel, identified as T3, using water injection for NOx control when fuel oil is used, and exhausting to stack S/V 7. When using natural gas, T3 has a maximum heat input capacity of 858 MMBtu/hr. When using #2 fuel oil, T3 has a maximum heat input capacity of 850 MMBtu/hr.

(c) Two (2) 630 horsepower diesel engines used for turbine start-up, identified as D7 and D8, each exhausting at stacks, identified as S/V 5 and S/V 6, respectively.

(d) Two (2) 300,000 gallon No. 2 fuel oil storage tanks, identified as FT10 and FT11.

### A.3 Specifically Regulated Insignificant Activities [326 IAC 2-7-1(21)] [326 IAC 2-7-4(c)] [326 IAC 2-7-5(15)]

This stationary source does not currently have any insignificant activities, as defined in 326 IAC 2-7-1 (21) that have applicable requirements.

### A.4 Part 70 Permit Applicability [326 IAC 2-7-2]

This stationary source is required to have a Part 70 permit by 326 IAC 2-7-2 (Applicability) because:

(a) It is a major source, as defined in 326 IAC 2-7-1(22); however, the source has requested to maintain a PSD Minor Source;

(b) It is an affected source under Title IV (Acid Deposition Control) of the Clean Air Act, as defined in 326 IAC 2-7-1(3), which has required this source to obtain a Part 70 permit;

(c) It is a source in a source category designated by the United States Environmental Protection Agency (U.S. EPA) under 40 CFR 70.3 (Part 70 - Applicability).

## SECTION D.1 FACILITY OPERATION CONDITIONS

**Facility Description [326 IAC 2-7-5(15)]:**

(a) Two (2) 38.7 megawatt (net) simple cycle gas turbines using natural gas as the primary fuel with No. 2 fuel oil used as a backup identified as T1 and T2, and using a water injection system as control, with each turbine exhausting to stacks, identified as S/V 3 and S/V 4, respectively.

(b) One (1) 84 megawatt (MW) simple cycle gas turbine, using natural gas as the primary fuel and #2 fuel oil as backup fuel, identified as T3, using water injection for NOx control and exhausting to stack S/V 7. When using natural gas, T3 has a maximum heat input capacity of 858 MMBtu/hr. When using #2 fuel oil, T3 has a maximum heat input capacity of 850 MMBtu/hr.

(The information describing the process contained in this facility description box is descriptive information and does not constitute enforceable conditions.)

**Emission Limitations and Standards [326 IAC 2-7-5(1)]**

D.1.1 Fuel Usage Limitation - Prevention of Significant Deterioration [326 IAC 2-2][40 CFR 52.21]

The total amount of natural gas equivalents consumed by turbines T1, T2, and T3 shall be limited to 8,003 million standard cubic feet of gas (MMSCF) per twelve consecutive month period with compliance determined at the end of each month.

(a) For every one million standard cubic feet of gas (MMSCF) consumed by turbine T3, the natural gas equivalent limit shall be reduced by one million standard cubic feet (MMCF).

(b) For every one million standard cubic feet of gas (MMSCF) consumed by turbine T1, the natural gas equivalent limit shall be reduced by 2.40 million standard cubic feet.

(c) For every one million standard cubic feet of gas (MMSCF) consumed by turbine T2, the natural gas equivalent limit shall be reduced by 2.55 million standard cubic feet.

(d) For every one thousand gallons of fuel oil (kgal) consumed by turbine T3, the natural gas equivalent limit shall be reduced by 0.392 million standard cubic feet.

(e) For every one thousand gallons of fuel oil (kgal) consumed by turbines T1 or T2, the natural gas equivalent limit shall be reduced by 0.382 million standard cubic feet.

This limit, in conjunction with the fuel limit on diesel engines D7 and D8 and the potential to emit from one (1) 2.0 MMBtu/hr natural gas-fired heater, has been incorporated to limit the potential to emit nitrogen oxidizes ($NO_x$) and carbon monoxide (CO) to less than 250 tons per twelve consecutive month period.

Compliance with this limit will render the requirements of 326 IAC 2-2 and 40 CFR 52.21 (Prevention of Significant Deterioration) not applicable.

D.1.2 General Provisions Relating to NSPS [326 IAC 12-1][40 CFR Part 60, Subpart A]

The provisions of 40 CFR 60, Subpart A - General Provisions, which are incorporated by reference in 326 IAC 12-1, apply to the facility described in this section except when otherwise specified in 40 CFR 60, Subpart GG (Standards of Performance for Stationary Gas Turbines).

D.1.3 New Source Performance Standard [326 IAC 12-1][40 CFR Part 60, Subpart GG]

Pursuant to 40 CFR 60, Subpart GG (Standards of Performance for Stationary Gas Turbines), the Permittee shall comply with the following limits:

(1) limit nitrogen oxides emissions, as required by 40 CFR 60.332, to:

$$STD = 0.0075 \frac{(14.4)}{Y} + F,$$

where STD = allowable $NO_x$ emissions (percent by volume at 15 percent oxygen on a dry basis).

Y = manufacturer's rated heat rate at manufacturer's rated load (kilojoules per watt hour) or, actual measured heat rate based on lower heating value of fuel as measured at actual peck load for the facility. The value of Y shall not exceed 14.4 kilojoules per watt hour.

F = $NO_x$ emission allowance for fuel-bound nitrogen as defined in paragraph (a)(3) of 40 CFR 60.332.

(2) Limit sulfur dioxide emissions, as required by 40 CFR 60.333, to 0.015 percent by volume at 15 percent oxygen on a dry basis, or use natural gas fuel with a sulfur content less than or equal to 0.8 percent by weight.

D.1.4 NOx Emissions Limitations

(a) Pursuant to CP-048-1841, issued May 11, 1990, the nitrogen oxide ($NO_x$) emissions from turbines T1 and T2 shall be limited to 42 parts per million dry volume (ppmdv) at 15 percent oxygen when combusting natural gas and 65 parts per million dry volume (ppmdv) at 15 percent oxygen when combusting fuel oil. [These limits are more stringent than the NSPS standards contained in 326 IAC 12 and 40 CFR 60.332 (a)(1) and (b)].

(b) In order to ensure compliance with 40 CFR 60.332, the nitrogen oxide ($NO_x$) emissions from turbine T3 shall be limited to 42 parts per million dry volume (ppmdv) at 15 percent oxygen when combusting natural gas and 65 parts per million dry volume (ppmdv) at 15 percent oxygen when combusting fuel oil. [These limits are more stringent than the NSPS standards contained in 326 IAC 12 and 40 CFR 60.332 (a)(1) and (b)].

D.1.5 Sulfur Dioxide [326 IAC 2-7-24] [40 CFR 60.333(b)] [326 IAC 7-1.1]

(a) Pursuant to Construction Permit 048-1841, issued May 11, 1990, the sulfur content of any fuel (natural gas or oil) used in turbines T1 and T2 shall be limited to 0.17% sulfur by weight. Pursuant to 326 IAC 2-7-24, compliance with this limitation shall satisfy the requirements of 40 CFR 60.333(b) and 326 IAC 7-1.1.

(b) In order to ensure compliance with 40 CFR 60.333, the sulfur content of any fuel (natural gas or oil) used in turbine T3 shall be limited to 0.17% sulfur by weight. Pursuant to 326 IAC 2-7-24, compliance with this limitation shall satisfy the requirements of 40 CFR 60.333(b) and 326 IAC 7-1.1.

D.1.6 Opacity

(a) Pursuant to Construction Permit 048-1841, issued May 11, 1990, and in order to ensure compliance with 326 IAC 5-1, visible emissions from combustion turbine stacks S/V 3 and S/V 4 shall be limited to twenty percent (20%) opacity.

(b) In order to ensure compliance with 326 IAC 5-1, visible emissions from combustion turbine stack S/V 7 shall be limited to twenty percent (20%) opacity.

D.1.7 Preventive Maintenance Plan [326 IAC 1-6-3]

A Preventive Maintenance Plan, in accordance with Section B - Preventive Maintenance Plan, of this permit, is required for these facilities and any control devices.

**Compliance Determination Requirements**

D.1.8 Testing Requirements [326 IAC 2-7-6(1),(6)][40 CFR Part 60 Subpart GG][40 CFR 75.12]

(a) Within one hundred and eighty (180) days after initial startup of turbine T3, the Permittee shall conduct performance tests for $SO_2$ on turbine T3, using methods as approved by the Commissioner, in order to demonstrate compliance with Condition D.1.3. Testing shall be conducted in accordance with Section C- Performance Testing.

(b) The Permittee shall perform initial performance tests for turbine T3 to measure $NO_X$ emission rates at heat input rate levels corresponding to different load levels and plot the correlation between heat input rate and $NO_X$ emission rate in order to determine the emission rate of the units. This testing shall be performed in accordance with Section 2.1 of Appendix E of 40 CFR 75.

(c) The Permittee shall retest the $NO_X$ emission rate of each turbine prior to the earlier of 3,000 unit operating hours or the 5 year anniversary and renewal of its operating permit under 40 CFR Part 72. This testing shall be performed in accordance with Section 2.1 of Appendix E of 40 CFR 75.

D.1.9 NSPS Compliance Provisions [40 CFR Part 60, Subpart GG]

(a) Pursuant to 40 CFR 60, Subpart GG and the custom monitoring schedule procedures approved by EPA on April 05, 2001, when combusting natural gas, the turbines shall comply with the sulfur dioxide emissions standard by using pipeline natural gas, as defined by 40 CFR 72.2.

(b) No alternate fuel burned in the gas turbines shall contain sulfur in excess of 0.8 percent by weight.

D.1.10 Compliance Requirements (Stationary Gas Turbines) [40 CFR Part 60, Subpart GG]

Pursuant to 40 CFR Part 60, Subpart GG (Stationary Gas Turbines), the Permittee shall monitor and record the fuel consumption and the ratio of water to fuel being fired in the turbines as follows:

(a) Install a continuous monitoring system to monitor the fuel consumption and the ratio of water to fuel being fired in the turbines, as required by 40 CFR 60.334(a).

D.1.11 Sulfur Content and Nitrogen Content [326 IAC 12] [40 CFR Part 60, Subpart GG]

Compliance shall be determined utilizing the following option when combusting fuel oil:

Pursuant to 40 CFR 60.334, Subpart GG, the Permittee shall monitor the nitrogen and sulfur content of the fuel being fired in each turbine. Pursuant to 40 CFR 60.334 (b)(2), the custom monitoring schedule procedures approved by EPA on April 05, 2001 shall be accepted. Monitoring of these values shall be conducted as follows:

(a) The nitrogen and sulfur content values for the #2 fuel oil shall be determined either by sampling on a semi-annual frequency or determined by sampling after each occasion that fuel is transferred to the storage tank from any other source. The latter requirement requires that after each addition of #2 fuel oil to the storage tank, sampling for nitrogen and sulfur content must be performed.

The sulfur and nitrogen content information obtained from this monitoring shall be used to document compliance with the limits stated in Conditions D.1.1, D.1.3, D.1.4, and D.1.5.

D.1.12 Sulfur Content and Nitrogen Content [326 IAC 12] [40 CFR Part 60, Subpart GG]

Compliance shall be determined utilizing the following option when combusting natural gas:

Pursuant to 40 CFR 60.334, Subpart GG, the Permittee shall monitor the nitrogen and sulfur content of the fuel being fired in the turbines. Pursuant to 40 CFR 60.334 (b)(2), the custom monitoring schedule procedures approved by EPA on April 05, 2001 shall be accepted. Monitoring of these values shall be conducted as follows:

(a) The nitrogen content monitoring requirements pursuant to 40 CFR 60.334 (b) for the natural gas being fired in the gas turbines are waived since there is no fuel-bound nitrogen in pipeline natural gas, as defined by 40 CFR 72.2.

(b) The sulfur content values for the natural gas shall be monitored on a semi-annual frequency. The sulfur content of the natural gas being fired in the gas turbines shall be determined by the ASTM methods D 1072-80, D 3031-81, D 4084-82, or D 3246-81. The applicable ranges of some ASTM methods mentioned are not adequate to measure the levels of sulfur in some fuel gases. Dilution of samples before analysis (with verification of the dilution ratio) may be used, subject to the Approval of the Administrator.

The sulfur and nitrogen content information obtained from this monitoring shall be used to document compliance with the limits stated in Conditions D.1.1, D.1.3, D.1.4, and D.1.5.

D.1.13 Nitrogen Oxides Monitoring Requirement [326 IAC 10-4-4(b)(1)] [326 IAC 10-4-12(b) and (c)] [40 CFR 75]

(a) The Permittee shall meet the monitoring requirements of 326 IAC 10-4-12(b)(1) through (b)(3) that are applicable to the monitoring systems for turbines T1 and T2 on or before May 1, 2003. The Permittee shall record, report, and quality assure the data from the monitoring systems on and after May 1, 2003 for turbines T1 and T2 in accordance with 326 IAC 10-4-12 and 40 CFR 75.

(b) The Permittee shall meet the monitoring requirements of 326 IAC 10-4-12(b)(1) through (b)(3) that are applicable to the monitoring system for turbine T3 on or before the later of the dates listed in paragraphs (1) and (2). The Permittee shall record, report, and quality assure the data from the monitoring systems for turbine T3 on and after the later of the following dates in accordance with 326 IAC 10-4-12 and 40 CFR 75:

(1) May 1, 2003.

(2) The earlier of:

(A) one hundred eighty (180) days after the date on which the unit commences operation; or

(B) ninety (90) days after the date the unit commences commercial operation.

**Compliance Monitoring Requirements [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]**

D.1.14 Visible Emissions Notations

(a) Visible emission notations of turbines T1, T2, and T3 stack exhausts shall be performed once per shift during normal daylight operations when combusting #2 fuel oil. A trained employee shall record whether emissions are normal or abnormal.

(b) For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation, not counting startup or shut down time.

(c) In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions.

(d) A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process.

(e) The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when an abnormal emission is observed.

D.1.15 NOx Monitoring [40 CFR 75.12(d)]]

(a) Pursuant to EPA approval dated April 5, 2001, 40 CFR 72.9, and 40 CFR 75.12, the Permittee has elected to monitor $NO_X$ emissions from the natural gas-fired combustion turbines pursuant to 40 CFR 75, Appendix E, which is used for peaking units. Appendix E includes, but is not limited to, the following requirements:

(1) The Permittee shall perform initial performance tests for each turbine to measure $NO_X$ emission rates at heat input rate levels corresponding to different load levels and plot the correlation between heat input rate and $NO_X$ emission rate in order to determine the emission rate of the units. This testing shall be performed in accordance with Section 2.1 of Appendix E.

(2) The Permittee shall retest the $NO_X$ emission rate of the turbines prior to the earlier of 3,000 unit operating hours or the 5 year anniversary and renewal of its operating permit under 40 CFR Part 72.

(3) The Permittee shall record the time (hr. and min.), load (MWge or steam load in 1000 lb/hr), fuel flow rate and heat input rate (using the procedures in Section 2.1.3 of Appendix E) for each hour during which the unit combusts fuel. The Permittee shall calculate the total hourly heat input using equation E-1 of Appendix E and record the heat input rate for each fuel to the nearest 0.1 MMBtu/hr. During partial unit operating hours, heat input must be represented as an hourly rate in MMBtu/hr, as if the fuel were combusted for the entire hour at that rate in order to ensure proper correlation with the $NO_X$ emission rate graph.

(4) The Permittee shall use the graph of the baseline correlation results to determine the $NO_x$ emissions rate (lb/MMBtu) corresponding to the heat input rate (MMBtu/hr) and input this correlation into the data acquisition and handling system for the turbines. The data shall be linearly interpolated to 0.1 MMBtu/hr heat input rate and 0.01 lb/MMBtu.

(b) If any combustion turbine exceeds a capacity factor of 20 percent in any given year, or exceeds an average capacity factor of 10 percent for the previous 3 years, then the Permittee shall install, certify, and operate a $NO_X$ continuous emission monitoring system (CEMS) by December 31 of the following calendar year. The $NO_X$ CEMS shall meet the minimum requirements of 40 CFR Part 75 and 326 IAC 3-5. If the required CEMS has not been installed and certified by that date, the owner or operator shall report the maximum potential $NO_x$ emission rate (MER) (as defined in 40 CFR 72.2) for each unit operating hour, starting with the first unit operating hour after the deadline and continuing until the CEMS has been provisionally certified.

**Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]**

D.1.16 Record Keeping Requirements

(a) To document compliance with Conditions D.1.5, D.1.10, and D.1.11, the Permittee shall maintain records of the sulfur content monitoring data. Records shall be taken pursuant to 40 CFR 60.334.

(b) To document compliance with Condition D.1.1 the Permittee shall maintain records of fuel usage.

(c) To document compliance with Condition D.1.9, the Permittee shall maintain records of fuel consumption and the ratio of water to fuel being fired in the turbines.

(d) To document compliance with Condition D.1.10, the Permittee shall maintain records of fuel without intermediate bulk storage.

(e) To document compliance with Condition D.1.13, the Permittee shall maintain records of visible emission notations of the turbine stack exhausts.

(f) To document compliance with Condition D.1.15, the Permittee shall record the time (hr. and min.), load (MWge), fuel flow rate and heat input rate (using the procedures in Section 2.1.3 of Appendix E) for each hour during which the unit combusts fuel. The Permittee shall record the heat input rate for each fuel to the nearest 0.1 MMBtu/hr. During partial unit operating hours, heat input must be represented as an hourly rate in MMBtu/hr, as if the fuel were combusted for the entire hour at that rate in order to ensure proper correlation with the $NO_X$ emission rate graph.

(g) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

D.1.17 Nitrogen Oxides Budget Trading Program [326 IAC 10-4-4(a)(1)] [326 IAC 10-4-9(e)(2)]

(a) For $NO_x$ budget unit (turbine T3) that will commence operation on or after January 1, 2001, the $NO_x$ authorized account representative shall submit a complete $NO_x$ budget permit application in accordance with 326 IAC 10-4-7 at least two hundred seventy (270) days prior to the later of May 31, 2004 or the date on which the $NO_x$ budget unit commences operation. This application shall be submitted by the NOx authorized account representative to:

Indiana Department of Environmental Management
Permits Branch, Office of Air Quality
100 North Senate Avenue, P.O. Box 6015
Indianapolis, Indiana 46206-6015

(b) For $NO_x$ budget unit (turbine T3) that will commence operation on or after May 1, 2000, the $NO_x$ authorized account representative shall submit a request for $NO_x$ allowances in accordance with 326 IAC 10-4-9(e) by September 1st of the calendar year that is one (1) year in advance of the first ozone control period for which the $NO_x$ allowance allocation is requested. The $NO_x$ authorized account representative shall submit a request each year that the unit will require allowances from the new unit set aside until the unit is allocated allowances from the existing source pool. These requests shall be submitted by the $NO_x$ authorized account representative to:

Indiana Department of Environmental Management
Compliance Branch, Office of Air Quality
100 North Senate Avenue, P.O. Box 6015
Indianapolis, Indiana 46206-6015

D.1.18 Reporting Requirements

A quarterly report of the information to document compliance with Condition D.1.1 shall be submitted to the addresses listed in Section C – General Reporting Requirements, of this permit, using the reporting forms located at the end of this permit, or their equivalent, within thirty (30) days after the end of the quarter being reported.

## SECTION D.2 FACILITY OPERATION CONDITIONS

**Facility Description [326 IAC 2-7-5(15)]:**

(c) Two (2) 630 horsepower diesel engines used for turbine start-up, identified as D7 and D8, each exhausting at stacks, identified as S/V 5 and S/V 6, respectively.

(The information describing the process contained in this facility description box is descriptive information and does not constitute enforceable conditions.)

### Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.2.1 Fuel Usage Limitations

The Permittee requests and accepts fuel oil usage limits for diesel engines D7 and D8. The total fuel oil usage for diesel engines D7 and D8 shall be limited to 2,200 gallons per twelve consecutive month period with compliance determined at the end of each month. This is equivalent to 0.67 tons per year of NOx emissions.

D.2.2 Sulfur Content

The sulfur content of the fuel oil used by diesel engines D7 and D8 shall not exceed 0.17% sulfur by weight.

D.2.3 Preventive Maintenance Plan [326 IAC 2-7-5(13)]

A Preventive Maintenance Plan, in accordance with Section B - Preventive Maintenance Plan, of this permit, is required for this facility and its control device.

### Compliance Monitoring Requirements [326 IAC 2-7-6(1)][326 IAC 2-7-5(1)]

D.2.4 Sulfur Content and Nitrogen Content

The sulfur content values for the #2 fuel oil shall be determined either by sampling on a semi-annual frequency or determined by sampling after each occasion that fuel is transferred to the storage tank from any other source. The latter requirement requires that after each addition of #2 fuel to the storage tank, sampling for sulfur content must be performed.

The sulfur content information obtained from this monitoring shall be used to document compliance with the limit stated in Condition D.2.2.

### Record Keeping and Reporting Requirement [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

D.2.5 Record Keeping Requirements

(a) To document compliance with Condition D.2.1, the Permittee shall maintain records of fuel usage.

(b) To document compliance with Condition D.2.2, the Permittee shall maintain records of the sulfur content monitoring data.

(c) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

D.2.6 Reporting Requirements

A quarterly report of the information to document compliance with Condition D.2.1 shall be submitted to the addresses listed in Section C – General Reporting Requirements, of this permit, using the reporting forms located at the end of this permit, or their equivalent, within thirty (30) days after the end of the quarter being reported.

# Indiana Department of Environmental Management
# Office of Air Quality
# Compliance Data Section

## Quarterly Report

Source Name: Indiana Municipal Power Agency
Source Address: 6035 Park Road, Anderson, Indiana 46011
Mailing Address: 11610 N. College Avenue, Carmel, IN 46032
Part 70 Permit No.: T095-12389-00051
Facility: Turbines T1, T2, and T3
Pollutant: $NO_x$, CO
Parameter: Less than 8,003 MMSCF natural gas equivalents per twelve (12) consecutive month period
For every one million standard cubic feet of gas (MMSCF) consumed by turbine T3, the natural gas equivalent limit shall be reduced by one million standard cubic feet (MMSCF).
For every one million standard cubic feet of gas (MMSCF) consumed by turbine T1, the natural gas equivalent limit shall be reduced by 2.40 million standard cubic feet.
For every one million standard cubic feet of gas (MMSCF) consumed by turbine T2, the natural gas equivalent limit shall be reduced by 2.55 million standard cubic feet.
For every one thousand gallons of fuel oil (kgal) consumed by turbine T3, the natural gas equivalent limit shall be reduced by 0.392 million standard cubic feet.
For every one thousand gallons of fuel oil (kgal) consumed by turbines T1 or T2, the natural gas equivalent limit shall be reduced by 0.382 million standard cubic feet.

Year: ____________

| | Natural Gas Usage This Month (MMCF) | | | Fuel Oil Usage This Month (kgal) | | | Natural Gas Usage for Past 11 Months (MMCF) | | | Fuel Oil Usage for Past 11 Months (kgal) | | | Total Natural Gas equivalents used for the past 12 Month Period (MMCF) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Month | T1 | T2 | T3 | T1 | T2 | T3 | T1 | T2 | T3 | T1 | T2 | T3 | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |

Submitted by: ____________________________
Title/Position: ____________________________
Signature: ____________________________
Date: ____________________________
Phone: ____________________________

Attach a signed certification to complete this report.

# Indiana Department of Environmental Management
# Office of Air Quality
# Compliance Data Section
## and the
## Anderson Office of Air Management

## Quarterly Report

Source Name: Indiana Municipal Power Agency
Source Address: 6035 Park Road, Anderson, Indiana 46011
Mailing Address: 11610 N. College Avenue, Carmel, IN 46032
Part 70 Permit No.: T095-12389-00051
Facility: Diesel Engines D7 and D8
Pollutant: $NO_x$, CO
Parameter: Less than 2,200 gal fuel oil per twelve (12) consecutive month period

Year: ____________

| Month | Fuel Oil Usage This Month (kgal) | Fuel Oil Usage for Past 11 Months (kgal) | Fuel Oil Usage for Previous 12 Month Period (kgal) |
|---|---|---|---|
| | | | |
| | | | |
| | | | |

Submitted by: ____________________________
Title/Position: ____________________________
Signature: ____________________________
Date: ____________________________
Phone: ____________________________

Attach a signed certification to complete this report.

# Indiana Department of Environmental Management
# Office of Air Quality

## Addendum to the Technical Support Document for a Significant Source Modification and Significant Permit Modification to a Title V Part 70 Operating Permit

| | |
|---|---|
| Source Name: | Indiana Municipal Power Agency |
| Source Location: | 6035 Park Road, Anderson, Indiana 46011 |
| County: | Madison |
| SIC Code: | 4911 |
| Operation Permit No.: | T095-12389-00051 |
| Operation Permit Issuance Date: | December 7, 2001 |
| Significant Source Modification No.: | 095-15883-00051 |
| Significant Permit Modification No.: | 095-16149-00051 |
| Permit Reviewer: | ERG/BS |

On August 8, 2002, the Office of Air Quality (OAQ) had a notice published in the Herald Bulletin of Anderson, Indiana, stating that Indiana Municipal Power Agency had applied for a Title V Part 70 Operating Permit to operate a gas turbine electric generating plant. The notice also stated that OAQ proposed to issue a permit for this operation and provided information on how the public could review the proposed permit and other documentation. Finally, the notice informed interested parties that there was a period of thirty (30) days to provide comments on whether or not this permit should be issued as proposed.

On August 20, 2002, Indiana Municipal Power Agency provided comments on the proposed Part 70 permit. The following is a summary of the comments and responses to those comments including any changes to the permit. The Table Of Contents has been modified, if applicable, to reflect these changes.

**Comment 1:**

Condition D.2.1 should state that the fuel usage limitation is equivalent to "0.67 tons per year of NOx emissions" instead of 0.24 tons per year in order to be consistent with the emissions calculations provided in Appendix A.

**Response to Comment 1:**

The following change has been made to correctly indicate that the diesel turbines' equivalent potential to emit $NO_x$, after the effect of the fuel limitation, is 0.67 tons per year, not 0.24 tons per year (Other changes are also shown that are a result of comments discussed elsewhere in this document):

D.2.1 Fuel Usage Limitations

The Permittee requests and accepts ~~diesel~~ fuel **oil** usage limits for diesel engines D7 and D8. The total ~~diesel~~ fuel **oil** usage for diesel engines D7 and D8 shall be limited to 2,200 gallons per twelve consecutive month period with compliance determined at the end of each month. This is equivalent to ~~0.24~~ **0.67** tons per year of $NO_x$ emissions.

**Comment 2:**

IMPA has decided to add a natural gas-fired heater with a rated capacity of 2.0 MMBtu/hr. This unit qualifies as an insignificant activity since its heat input is less than 10 MMBtu/hr; however, the current natural gas usage limit of 8,025 MMCF/yr will need to be adjusted to accommodate the emission contribution from this unit so that the total PTE of the facility is less than 250 tons per year. The PTE carbon monoxide (CO) for the heater, based on an AP-42 emission factor of 84 lb CO/MMCF, is 0.72 tpy CO. Therefore, the natural gas usage limit should be reduced to 8,003 MMCF/yr in order to retain the source's PSD Minor source status.

There is only one (1) 84 MW turbine being added to the source. Please correct the description of turbine T3 in section D.1 to read "simple cycle gas turbine" instead of "simple cycle gas turbines".

IMPA requests that the allowable sulfur content limit in the distillate oil be changed from 0.3% to 0.17% sulfur to increase the quantity of fuel oil available to the turbines. The most widely available low sulfur diesel oil in today's market has a 0.05% sulfur content. We do not want a 0.05% sulfur content limit as the existing on-site oil storage tanks have some residual higher sulfur content oil that will be blended with low sulfur oil during normal operations and consumed as oil is used as fuel and the storage tank is replenished. As oil is only infrequently used, this complete "burn out" of the older, higher sulfur content oil may not be completed by the effective date of this permit, thus the need for the higher than 0.05% S limit. Because the gas contains essentially no sulfur, please correct Condition D.1.5 to limit the content of the gas and oil to 0.17% sulfur.

On the Quarterly Report form, page 9 of 10 of the Source Modification and page 38 of 41 of the Permit Modification, the first "Parameter" paragraph is incorrect and should be deleted to be consistent with the limits contained in Condition D.1.1.

**Response to Comment 2:**

The following changes have been made to: 1) correct the turbines' fuel usage limitation in order to accommodate the addition of the 2.0 MMBtu/hr natural-gas fired heater, 2) clarify that only one (1)additional 84 MW turbine is being added to this source at this time, 3) adjust the limited sulfur content of the fuel oil and natural gas available to the turbines, 4) correctly identify the OAQ, and 5) correct the Quarterly reporting form as necessary.

Note that pursuant to 40 CFR 75 Appendix E, the source has submitted the results of the optional $NO_x$ emissions estimation protocol monitoring system. On December 6, 2000, OAQ reviewed and approved IMPA's monitoring systems report for the purposes of the Part 75 Acid Rain program. The report summarized the tests that were performed on turbines T1 and T2 at the IMPA - Anderson Station on July 11-13, 2000 in order to determine the estimation curves by establishing a ratio between fuel usage (in MMBtu/hour) and the corresponding $NO_x$ emissions (in lb/MMBtu) from turbines T1 and T2. The test results provide more accurate emission factors for turbines T1 and T2 over a range of heat input. As a result, the equivalency factors for fuel usage have been revised , as follows, based on the worst case emission factors as indicated by the test results:

**SECTION D.1 FACILITY OPERATION CONDITIONS**

**Facility Description [326 IAC 2-7-5(15)]:**

(a) Two (2) 38.7 megawatt (net) simple cycle gas turbines using natural gas as the primary fuel with No. 2 fuel oil used as a backup identified as T1 and T2, and using a water injection system as control, with each turbine exhausting to stacks, identified as S/V 3 and S/V 4, respectively.

(b) One (1) 84 megawatt (MW) simple cycle gas turbine~~s~~, using natural gas as the primary fuel and #2 fuel oil as backup fuel, identified as T3, using water injection for NOx control when fuel oil is used, and exhausting to stack S/V 7. When using natural gas, T3 has a maximum heat input capacity of 858 MMBtu/hr. When using #2 fuel oil, T3 has a maximum heat input capacity of 850 MMBtu/hr.

(The information describing the process contained in this facility description box is descriptive information and does not constitute enforceable conditions.)

D.1.1 Fuel Usage Limitation - Prevention of Significant Deterioration [326 IAC 2-2][40 CFR 52.21]

The total amount of natural gas equivalents consumed by turbines T1, T2, and T3 shall be limited to ~~8,025~~ **8,003** million **standard** cubic feet of gas (MM**S**CF) per twelve consecutive month period with compliance determined at the end of each month.

(a) For every one million **standard** cubic feet of gas (MM**S**CF) consumed by turbine T3, the natural gas equivalent limit shall be reduced by one million **standard** cubic feet (MMCF).

(b) For every one million **standard** cubic feet of gas (MM**S**CF) consumed by turbine~~s~~ T1 ~~or T2~~, the natural gas equivalent limit shall be reduced by ~~2.132~~ **2.40** million **standard** cubic feet.

**(c) For every one million standard cubic feet of gas (MMSCF) consumed by turbine T2, the natural gas equivalent limit shall be reduced by 2.55 million standard cubic feet.**

(~~c~~ **d**) For every one thousand gallons of fuel oil (kgal) consumed by turbine T3, the natural gas equivalent limit shall be reduced by ~~0.391~~ **0.392** million **standard** cubic feet.

(~~d~~ **e**) For every one thousand gallons of fuel oil (kgal) consumed by turbines T1 or T2, the natural gas equivalent limit shall be reduced by ~~0.533~~ **0.382** million **standard** cubic feet.

This limit, in conjunction with the fuel limit on diesel engines D7 and D8 **and the potential to emit from one (1) 2.0 MMBtu/hr natural gas-fired heater,** has been incorporated to limit the potential to emit nitrogen oxidizes ($NO_x$) and carbon monoxide (CO) to less than 250 tons per twelve consecutive month period.

Compliance with this limit will render the requirements of 326 IAC 2-2 and 40 CFR 52.21 (Prevention of Significant Deterioration) not applicable.

D.1.5 Sulfur Dioxide [326 IAC 2-7-24] [40 CFR 60.333(b)] [326 IAC 7-1.1]

(a) Pursuant to Construction Permit 048-1841, issued May 11, 1990, the sulfur content of any fuel (natural gas or oil) used in turbines T1 and T2 shall be limited to ~~0.3%~~ **0.17%** sulfur by weight. Pursuant to 326 IAC 2-7-24, compliance with this limitation shall satisfy the requirements of 40 CFR 60.333(b) and 326 IAC 7-1.1.

(b) In order to ensure compliance with 40 CFR 60.333, the sulfur content of any fuel (natural gas or oil) used in turbine T3 shall be limited to ~~0.3%~~ **0.17%** sulfur by weight. Pursuant to 326 IAC 2-7-24, compliance with this limitation shall satisfy the requirements of 40 CFR 60.333(b) and 326 IAC 7-1.1.

## Indiana Department of Environmental Management
## Office of Air ~~Management~~ Quality
## Compliance Data Section

### Quarterly Report

| | |
|---|---|
| Source Name: | Indiana Municipal Power Agency |
| Source Address: | 6035 Park Road, Anderson, Indiana 46011 |
| Mailing Address: | 11610 N. College Avenue, Carmel, IN 46032 |
| Part 70 Permit No.: | T095-12389-00051 |
| Facility: | Turbines T1, T2, and T3 |
| Pollutant: | $NO_x$, CO |
| ~~Parameter:~~ | ~~Less than 1,526 MMCF natural gas per twelve (12) consecutive month period~~ |
| | ~~For every one (1) thousand gallons (kgal) of fuel oil consumed by the turbines, the natural gas usage limit shall be reduced by 0.101 million cubic feet.~~ |
| Parameter: | Less than ~~8,025~~ **8,003** MM**S**CF natural gas equivalents per twelve (12) consecutive month period<br>For every one million **standard** cubic feet of gas (MM**S**CF) consumed by turbine T3, the natural gas equivalent limit shall be reduced by one million **standard** cubic feet (MM**S**CF).<br>For every one million **standard** cubic feet of gas (MM**S**CF) consumed by turbine~~s~~ T1 ~~or T2~~, the natural gas equivalent limit shall be reduced by ~~2.132~~ **2.40** million **standard** cubic feet.<br>**For every one million standard cubic feet of gas (MMSCF) consumed by turbine T2, the natural gas equivalent limit shall be reduced by 2.55 million standard cubic feet.**<br>For every one thousand gallons of fuel oil (kgal) consumed by turbine T3, the natural gas equivalent limit shall be reduced by ~~0.391~~ **0.392** million **standard** cubic feet.<br>For every one thousand gallons of fuel oil (kgal) consumed by turbines T1 or T2, the natural gas equivalent limit shall be reduced by ~~0.533~~ **0.382** million **standard** cubic feet. |

**Comment 3:**

The header of the permit has the wrong three digit county code on the permit number. T177 should be changed to T095. This typographic error is included on the original Part 70 permit.

**Response to Comment 3:**

The permit has been revised, as appropriate, to correctly indicate that the county/source number for this source is 095-00051, not 177-00051.

**Comment 4:**

In Appendix A to the TSD, page 2 of 3, the emission factor for nickel on a distillate oil fired turbine is listed as "1.2E-03." AP-42 lists this emission factor as <4.6E-06.

**Response to Comment 4:**

IDEM acknowledges that the correct AP-42 emission factor for nickel for distillate oil fuel combustion is $<4.6 \times 10^{-6}$ lb/MMBtu. As a result, the source's nickel PTE is 0.034 tpy. The OAQ prefers that the Technical Support Document reflect the permit that was on public notice. Changes to the permit that occur after the public notice are documented in this Addendum to the Technical Support Document. This accomplishes the desired result of ensuring that these types of concerns are documented and part of the record regarding this permit decision. No changes were made to the permit or TSD as a result of this comment.

**Comment 5:**

The TSD states that compliance testing is not required for sulfur dioxide or nitrogen oxides since compliance will be demonstrated by implementing the custom monitoring schedule and conducting semi-annual sampling and fuel monitoring. This is not consistent with 40 CFR Part 60 Subpart GG. Please correct the permit to indicate that, pursuant to 40 CFR 60.335(b), initial performance testing is required for the new turbine.

**Response to Comment 5:**

Initial performance testing for $NO_x$ and $SO_2$ is required for turbine T3 pursuant to 40 CFR Part 60 Subpart GG. The following condition has been added to indicate that the source must complete initial performance testing for turbine T3. The subsequent conditions have been re-numbered to accommodate this change. The OAQ prefers that the Technical Support Document (TSD) reflect the permit that was on public notice. Changes to the permit that occur after the public notice are documented in this Addendum to the Technical Support Document. This accomplishes the desired result of ensuring that these types of concerns are documented and part of the record regarding this permit decision. No changes were made to the TSD as a result of this comment.

**D.1.8 Testing Requirements [326 IAC 2-7-6(1),(6)][40 CFR Part 60 Subpart GG]**

**Within one hundred and eighty (180) days after initial startup of turbine T3, the Permittee shall conduct performance tests for $NO_x$ and $SO_2$ on turbine T3, using methods as approved by the Commissioner, in order to demonstrate compliance with Condition D.1.3. Testing shall be conducted in accordance with Section C- Performance Testing.**

Upon further review, the OAQ has decided to make the following revisions to the permit (bolded language has been added, the language with a line through it has been deleted). The Table Of Contents has been modified, if applicable, to reflect these changes.

1. Pursuant to 326 IAC 10-4-2(16) turbines T1 and T2 are each considered an "electricity generating unit (EGU)" because each turbine commenced operation before January 1, 1997 and served as a generator during 1995 or 1996 that had a nameplate capacity greater than twenty-five (25) megawatts that produced electricity for sale under a firm contract to the electric grid. Pursuant to 326 IAC 10-4-1(a)(1), an "EGU" is a $NO_x$ budget unit. Because this source meets the criteria of having one (1) or more $NO_x$ budget units, it is a $NO_x$ budget source. The Permittee

shall be subject to the requirements of this rule. The $NO_x$ authorized account representative has already submitted the permit application for turbines T1 and T2.

Pursuant to 326 IAC 10-4-2(16) turbine T3 is considered an "electricity generating unit (EGU)" because it will commence operation after January 1, 1999 and will serve as a generator at any time that has a nameplate capacity greater than twenty-five (25) megawatts that will produce electricity for sale under a firm contract to the electric grid. Pursuant to 326 IAC 10-4-1(a)(1), an "EGU" is a $NO_x$ budget unit. Because this source meets the criteria of having one (1) or more $NO_x$ budget units, it is a $NO_x$ budget source. The Permittee shall be subject to the requirements of this rule. Since turbine T3 will commence operation after May 1, 2000, the unit was not allocated $NO_x$ allowances for the 2004, 2005, and 2006 ozone seasons from the existing EGU budget under 326 IAC 10-4-9(b)(1)(A). Therefore, if the $NO_x$ authorized account representative requires $NO_x$ allowances to be allocated, the $NO_x$ authorized account representative shall submit a written request to the IDEM, OAQ for $NO_x$ allowances in accordance with 326 IAC 10-4-9(e)(2) and (3).

As a result, the following changes have been made to the permit to indicate that turbines T1, T2 and T3 are subject to 326 IAC 10-4 ($NO_x$ Budget Trading Program):

**D.1.13 Nitrogen Oxides Monitoring Requirement [326 IAC 10-4-4(b)(1)] [326 IAC 10-4-12(b) and (c)] [40 CFR 75]**

**(a) The Permittee shall meet the monitoring requirements of 326 IAC 10-4-12(b)(1) through (b)(3) that are applicable to the monitoring systems for turbines T1 and T2 on or before May 1, 2003. The Permittee shall record, report, and quality assure the data from the monitoring systems on and after May 1, 2003 for turbines T1 and T2 in accordance with 326 IAC 10-4-12 and 40 CFR 75.**

**(b) The Permittee shall meet the monitoring requirements of 326 IAC 10-4-12(b)(1) through (b)(3) that are applicable to the monitoring system for turbine T3 on or before the later of the dates listed in paragraphs (1) and (2). The Permittee shall record, report, and quality assure the data from the monitoring systems for turbine T3 on and after the later of the following dates in accordance with 326 IAC 10-4-12 and 40 CFR 75:**

**(1) May 1, 2003.**

**(2) The earlier of:**

**(A) one hundred eighty (180) days after the date on which the unit commences operation; or**

**(B) ninety (90) days after the date the unit commences commercial operation.**

**Compliance Monitoring Requirements [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]**

D.1.~~12~~**14** Visible Emissions Notations

(a) Visible emission notations of turbines T1, T2, and T3 stack exhausts shall be performed once per shift during normal daylight operations when combusting #2 fuel oil. A trained employee shall record whether emissions are normal or abnormal.

(b) For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation, not counting startup or shut down time.

(c) In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions.

(d) A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process.

(e) The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when an abnormal emission is observed.

**Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]**

D.1.~~13~~**15** Record Keeping Requirements

(a) To document compliance with Conditions D.1.5, D.1.10, and D.1.11, the Permittee shall maintain records of the sulfur content monitoring data. Records shall be taken pursuant to 40 CFR 60.334.

(b) To document compliance with Condition D.1.1 the Permittee shall maintain records of fuel usage.

(c) To document compliance with Condition D.1.9, the Permittee shall maintain records of fuel consumption and the ratio of water to fuel being fired in the turbines.

(d) To document compliance with Condition D.1.10, the Permittee shall maintain records of fuel without intermediate bulk storage.

(e) To document compliance with Condition D.1.~~12~~**13**, the Permittee shall maintain records of visible emission notations of the turbine stack exhausts.

(f) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

**D.1.16 Nitrogen Oxides Budget Trading Program [326 IAC 10-4-4(a)(1)] [326 IAC 10-4-9(e)(2)]**

**(a) For $NO_x$ budget unit (turbine T3) that will commence operation on or after January 1, 2001, the $NO_x$ authorized account representative shall submit a complete $NO_x$ budget permit application in accordance with 326 IAC 10-4-7 at least two hundred seventy (270) days prior to the later of May 31, 2004 or the date on which the $NO_x$ budget unit commences operation. This application shall be submitted by the NOx authorized account representative to:**

**Indiana Department of Environmental Management
Permits Branch, Office of Air Quality
100 North Senate Avenue, P.O. Box 6015
Indianapolis, Indiana 46206-6015**

**(b) For $NO_x$ budget unit (turbine T3) that will commence operation on or after May 1, 2000, the $NO_x$ authorized account representative shall submit a request for $NO_x$ allowances in accordance with 326 IAC 10-4-9(e) by September 1st of the calendar**

**year that is one (1) year in advance of the first ozone control period for which the $NO_x$ allowance allocation is requested. The $NO_x$ authorized account representative shall submit a request each year that the unit will require allowances from the new unit set aside until the unit is allocated allowances from the existing source pool. These requests shall be submitted by the $NO_x$ authorized account representative to:**

**Indiana Department of Environmental Management**
**Compliance Branch, Office of Air Quality**
**100 North Senate Avenue, P.O. Box 6015**
**Indianapolis, Indiana 46206-6015**

On September 3, 2002, a member of the public, Stephen Loeschner, provided comments on the proposed Significant Source Modification and Significant Permit Modification to a Part 70 permit. The following is a summary of the comments and responses to those comments including any changes to the permit. The Table Of Contents has been modified, if applicable, to reflect these changes.

**Comment 1:**

I request that the maximum design "40 CFR 72.2 - Heat input" and maximum design MW generating capacity for all 5 units be included in the 16149 Section A.2 conditions as well as the Section D.1 and D.2 facility descriptions. Just what is the maximum design MW generating capacity is not easy to define. There is a power value that maximizes the return on capital investment consistent with the costs of maintenance and the chance of catastrophic failure due to trying to wring out the most profitable MW.

**Response to Comment 1:**

40 CFR 72.2 defines heat input rate as "the product (expressed in mmBtu/hr) of the gross calorific value of the fuel (expressed in mmBtu/mass of fuel) and the fuel feed rate into the combustion device (expressed in mass of fuel/hr) and does not include the heat derived from preheated combustion air, recirculated flue gases, or exhaust from other sources."

The capacities of facilities listed in section A.2 and the D sections of a permit are used to identify facilities and are often an important factor in determining applicable requirements. In this case, the descriptions successfully identify each facility and can be used to determine the applicability of 40 CFR Part 60 Subpart GG pursuant to 40 CFR 60.330. Page 1 of Appendix A of the Technical Support Document contains all of the information necessary to determine the heat input rate for turbines T1, T2 and T3 as defined by 40 CFR 72.2. As this information is not required to be present in Section A.2 and the facility descriptions of Section D, and is already contained in Appendix A, no changes were made to the permit as a result of this comment.

**Comment 2:**

Condition D.1.8(a) refers to "pipeline supplied natural gas" and Condition D.1.11(a) refers to "pipeline quality natural gas". These terms are inconsistent and do not legally control the heat content, sulfur content, or other qualities of the gas. These terms should be replaced with "40 CFR 72.2 pipeline natural gas". To leave them in the permit would be sufficiently deceptive and misleading as to constitute 40 CFR 70.7(f)(1)(iii), IC 13-15-7-2(3)(A), "inaccurate statements". Also change any presence of "cubic feet" to "40 CFR 72.3 scf" throughout the permit.

**Response to Comment 2:**

40 CFR 72.2 defines pipeline natural gas as “a naturally occurring fluid mixture of hydrocarbons (e.g., methane, ethane, or propane) produced in geological formations beneath the Earth's surface that maintains a gaseous state at standard atmospheric temperature and pressure under ordinary conditions, and which is provided by a supplier through a pipeline. Pipeline natural gas contains 0.5 grains or less of total sulfur per 100 standard cubic feet. Additionally, pipeline natural gas must either be composed of at least 70 percent methane by volume or have a gross calorific value between 950 and 1100 Btu per standard cubic foot.”

In order to clearly define the type, quality, and quantity of the natural gas fed to the turbines, the following changes have been made to the permit (Other changes are also shown that are a result of comments discussed elsewhere in this document):

D.1.~~8~~ **9** NSPS Compliance Provisions [40 CFR Part 60, Subpart GG]

(a) Pursuant to 40 CFR 60, Subpart GG and the custom monitoring schedule procedures approved by EPA on April 05, 2001, when combusting natural gas, the turbines shall comply with the sulfur dioxide emissions standard by using pipeline ~~supplied~~ natural gas**, as defined by 40 CFR 72.2**.

(b) No alternate fuel burned in the gas turbines shall contain sulfur in excess of 0.8 percent by weight.

D.1.~~11~~**12** Sulfur Content and Nitrogen Content [326 IAC 12] [40 CFR Part 60, Subpart GG]

Compliance shall be determined utilizing the following option when combusting natural gas:

Pursuant to 40 CFR 60.334, Subpart GG, the Permittee shall monitor the nitrogen and sulfur content of the fuel being fired in the turbines. Pursuant to 40 CFR 60.334 (b)(2), the custom monitoring schedule procedures approved by EPA on April 05, 2001 shall be accepted. Monitoring of these values shall be conducted as follows:

(a) the nitrogen content monitoring requirements pursuant to 40 CFR 60.334 (b) for the natural gas being fired in the gas turbines are waived since there is no fuel-bound nitrogen in pipeline ~~quality~~ natural gas**, as defined by 40 CFR 72.2**.

(b) the sulfur content values for the natural gas shall be monitored on a semi-annual frequency. The sulfur content of the natural gas being fired in the gas turbines shall be determined by the ASTM methods D 1072-80, D 3031-81, D 4084-82, or D 3246-81. The applicable ranges of some ASTM methods mentioned are not adequate to measure the levels of sulfur in some fuel gases. Dilution of samples before analysis (with verification of the dilution ratio) may be used, subject to the Approval of the Administrator.

The sulfur and nitrogen content information obtained from this monitoring shall be used to document compliance with the limits stated in Conditions D.1.1, D.1.3, D.1.4, and D.1.5.

**Comment 3:**

In order to provide 42 USC 7479(1) synthetic minor status of mixed nitrogen oxides (“$NO_x$”) emissions for IMPA, there must be “40 CFR 52.21(b)(17) Federally enforceable” permit conditions within permit 16149 that produce a mathematical relationship leading to less than a 250 tons per year $NO_x$ emission limitation. Condition D.1.1(a) of permit 12389 allowed 675.0

million cubic feet of gas per year for T1 and T2 combined. Increasing that 150% leads to 1688 million cubic feet of gas. The equivalency factors and fuel limitation in Condition D.1.1 of permit 16149 allow for 3,764.1 million cubic feet of gas per year for T1 and T2. While the stock AP-42 water-steam "controlled" emission factor of 0.13 pounds $NO_x$ per million Btu combined with a nominal 1,020 Btu per cubic feet of gas and 3,764.1 million cubic feet of gas does calculate to 249.56 tpy $NO_x$, it is no way federally enforceable, as not only may the gas have a higher heat content, but T1 and T2 may have a higher $NO_x$ emission rate than the AP-42 emission factor. In addition, IDEM has required no testing of turbines T1, T2 or T3.

Note that Southern Indiana Gas and Electric Company was issued 163-15853-00001 to adjust $NO_x$ emissions rates and fuel limits on turbine unit #1 based on stack test results. Turbine unit #1 at this source could not comply with a 0.32 pounds $NO_x$ per million Btu emission rate and is consequently now limited to 0.545 pounds of $NO_x$ per million Btu via 163-15853-00001. Without requiring stack testing, IMPA's natural gas equivalents limit of 8,025 million cubic feet should be reduced to 4,699 million cubic feet.

Also note that the 160 MW IMPA source is larger than the 132 MW Cinergy Cadiz, issued 065-10469-00032 on July 15, 1999. A continuous emission monitoring system ("CEMS") is required on each of the Cinergy 44 MW turbine stacks for $NO_x$ and CO. Absolutely nothing less is appropriate for the three IMPA stacks in accordance with 326 IAC 3-5-1(d)(1).

IMPA was previously allowed to emit up to 100 tpy of any criteria pollutant. In light of compelling technical and economical reality of the available equipment, it is not reasonable to allow a 150% pollution increase without CEMS control of both CO and $NO_x$ on the three largest emission units. IDEM must use its 326 IAC 3-5-1(d)(1) authority to compel IMPA to install calibrate, certify, and use CEMS for $NO_x$ and CO on all three turbines in order to assure the source's PSD Minor status. IDEM must prohibit construction of turbine T3 unless simultaneous CEMS construction is conducted.

Unless the emission limits provided in a permit account for reasonable measurement error, the permitted source, while seemingly complying with those limitations, could actually emit in excess of its allowable limits. For example, consider a source with a $NO_x$ limit of less than 250 tpy that uses a CEMS in order to determine compliance. There could be a 3% error in the measurement of stack gas volumetric rate and stack gas $NO_x$ concentration, totaling 6% error. If the CEMS indicated that the source emitted 249.9 tpy, then the source could have actually emitted as much as 264.9 tpy - a violation that would go unacknowledged. Therefore, I request that IMPA's limits be recalculated assuming maximum possible error in order to prevent a violation of its PSD Minor limit.

**Response to Comment 3:**

IDEM considered the installation of CEMS during the review and issuance of the original Part 70 Operating Permit issued to IMPA on December 7, 2001. That permit included voluntary conditions that limitted the potential to emit $NO_x$ and CO to less than 100 tons per year. The applicable emission threshold for major new source review is 250 tons per year. The Acid Deposition Control Program allows "peaking units" to use an alternative to CEMS that relies on a combination of performance stack tests and fuel monitoring to determine actual emissions. Because the Acid Deposition Control Program (40 CFR 72, and 40 CFR 75) allows for an alternative method, and compliance was being demonstrated at a level well below the major new source review threshold, IDEM approved that method for demonstrating compliance with the 100 tons per year limits.

A similar approach is included for the source as modified by this permit. The IMPA permit now contains conditions to limit the potential to emit $NO_x$ and CO from the entire source to less than 250 tons per year. The maximum annual emissions from all three units combined when operating as "peaking units" as defined by the Acid Deposition Control Program and 40 CFR 72.2 would be 108.5 tons $NO_x$ and 54.32 tons CO as shown below:

| Unit | Maximum NOx Emission Rate (lb/hr) | Maximum CO Emission Rate (lb/hr) | Estimated NOx Emissions (tpy) | Estimated CO Emissions (tpy) |
|---|---|---|---|---|
| T1 | 45.48 (1) | 4.84 (1) | 39.8 | 4.24 |
| T2 | 45.48 (1) | 4.84 (1) | 39.8 | 4.24 |
| T3 | 33.00 (2) | 52.34 (2) | 28.9 | 45.84 |
| Total | | | 108.5 | 54.32 |

(1) From stack testing
(2) Provided by the manufacturer
Methodology: Estimated $NO_x$ (or CO) Emissions (ton/yr) = Maximum $NO_x$ (or CO) emission rate (lb/hr) x 8760 hr/yr x 20% (single year capacity factor for a peaking unit per 40 CFR 72.2) x 1/2000 ton/lb

Since these levels are still well below the major new source review threshold and maximum permit limit of 250 tons per year, the IDEM feels that the method is an acceptable alternative to CEMS. The permit has been modified to require that if any unit no longer qualifies as a "peaking unit", then CEMS must be installed and operated to demonstrate compliance with both the requirements of the Acid Deposition Control Program and with the permit limits. As a result, the following changes have been made to the permit:

D.1.8 Testing Requirements [326 IAC 2-7-6(1),(6)][40 CFR Part 60 Subpart GG] **[40 CFR 75.12]**

**(a)** Within one hundred and eighty (180) days after initial startup of turbine T3, the Permittee shall conduct performance tests for ~~$NO_x$ and~~ $SO_2$ on turbine T3, using methods as approved by the Commissioner, in order to demonstrate compliance with Condition D.1.3. Testing shall be conducted in accordance with Section C- Performance Testing.

**(b) The Permittee shall perform initial performance tests for turbine T3 to measure $NO_X$ emission rates at heat input rate levels corresponding to different load levels and plot the correlation between heat input rate and $NO_X$ emission rate in order to determine the emission rate of the units. This testing shall be performed in accordance with Section 2.1 of Appendix E of 40 CFR 75.**

**(c) The Permittee shall retest the $NO_X$ emission rate of each turbine prior to the earlier of 3,000 unit operating hours or the 5 year anniversary and renewal of its operating permit under 40 CFR Part 72. This testing shall be performed in accordance with Section 2.1 of Appendix E of 40 CFR 75.**

**D.1.15 NOx Monitoring [40 CFR 75.12(d)]]**

**(a) Pursuant to EPA approval dated April 5, 2001, 40 CFR 72.9, and 40 CFR 75.12, the Permittee has elected to monitor $NO_X$ emissions from the natural gas-fired combustion turbines pursuant to 40 CFR 75, Appendix E, which is used for peaking units. Appendix E includes, but is not limited to, the following requirements:**

**(1) The Permittee shall perform initial performance tests for each turbine to**

**measure $NO_X$ emission rates at heat input rate levels corresponding to different load levels and plot the correlation between heat input rate and $NO_X$ emission rate in order to determine the emission rate of the units. This testing shall be performed in accordance with Section 2.1 of Appendix E.**

**(2) The Permittee shall retest the $NO_X$ emission rate of the turbines prior to the earlier of 3,000 unit operating hours or the 5 year anniversary and renewal of its operating permit under 40 CFR Part 72.**

**(3) The Permittee shall record the time (hr. and min.), load (MWge or steam load in 1000 lb/hr), fuel flow rate and heat input rate (using the procedures in Section 2.1.3 of Appendix E) for each hour during which the unit combusts fuel. The Permittee shall calculate the total hourly heat input using equation E-1 of Appendix E and record the heat input rate for each fuel to the nearest 0.1 MMBtu/hr. During partial unit operating hours, heat input must be represented as an hourly rate in MMBtu/hr, as if the fuel were combusted for the entire hour at that rate in order to ensure proper correlation with the $NO_X$ emission rate graph.**

**(4) The Permittee shall use the graph of the baseline correlation results to determine the $NO_x$ emissions rate (lb/MMBtu) corresponding to the heat input rate (MMBtu/hr) and input this correlation into the data acquisition and handling system for the turbines. The data shall be linearly interpolated to 0.1 MMBtu/hr heat input rate and 0.01 lb/MMBtu.**

**(b) If any combustion turbine exceeds a capacity factor of 20 percent in any given year, or exceeds an average capacity factor of 10 percent for the previous 3 years, then the Permittee shall install, certify, and operate a $NO_X$ continuous emission monitoring system (CEMS) by December 31 of the following calendar year. The $NO_X$ CEMS shall meet the minimum requirements of 40 CFR Part 75 and 326 IAC 3-5. If the required CEMS has not been installed and certified by that date, the owner or operator shall report the maximum potential $NO_x$ emission rate (MER) (as defined in 40 CFR 72.2) for each unit operating hour, starting with the first unit operating hour after the deadline and continuing until the CEMS has been provisionally certified.**

**Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]**

D.1.~~15~~ **16** Record Keeping Requirements

(a) To document compliance with Conditions D.1.5, D.1.10, and D.1.11, the Permittee shall maintain records of the sulfur content monitoring data. Records shall be taken pursuant to 40 CFR 60.334.

(b) To document compliance with Condition D.1.1 the Permittee shall maintain records of fuel usage.

(c) To document compliance with Condition D.1.9, the Permittee shall maintain records of fuel consumption and the ratio of water to fuel being fired in the turbines.

(d) To document compliance with Condition D.1.10, the Permittee shall maintain records of fuel without intermediate bulk storage.

(e) To document compliance with Condition D.1.13, the Permittee shall maintain records of visible emission notations of the turbine stack exhausts.

**(f) To document compliance with Condition D.1.15, the Permittee shall record the time (hr. and min.), load (MWge), fuel flow rate and heat input rate (using the procedures in Section 2.1.3 of Appendix E) for each hour during which the unit combusts fuel. The Permittee shall record the heat input rate for each fuel to the nearest 0.1 MMBtu/hr. During partial unit operating hours, heat input must be represented as an hourly rate in MMBtu/hr, as if the fuel were combusted for the entire hour at that rate in order to ensure proper correlation with the $NO_X$ emission rate graph.**

(~~f~~ **g**) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

**Comment 4:**

The sulfur dioxide values and footnote (a) in the table located on page 5 of the Technical Support Document are grossly misrepresented. If 40 CFR 72.2 pipeline natural gas was combined with the 8,025 million cubic feet gas limit, then the equivalent $SO_2$ emissions would equal 6.88 tpy. This is significantly different than the 0.01 tpy figure listed on page 5 of the Technical Support Document.

**Response to Comment 4:**

As stated in Condition D.1.9, the source must use pipeline natural gas, as defined by 40 CFR 72.2, to comply with the respective sulfur dioxide emission limitations. According to 40 CFR 72.2, pipeline natural gas is natural gas with a sulfur content less than 0.5 grains per 100 standard cubic feet of gas. As a result, the source's potential to emit $SO_2$, after consuming 100% of the available fuel limit, is 5.72 tpy. The OAQ prefers that the Technical Support Document reflect the permit that was on public notice. Changes to the permit that occur after the public notice are documented in this Addendum to the Technical Support Document. This accomplishes the desired result of ensuring that these types of concerns are documented and part of the record regarding this permit decision. No changes were made to the permit or TSD as a result of this comment.

**Comment 5:**

Section D.2 does not contain a condition limiting the sulfur content of the fuel oil used in engines D7 and D8. As a result, the table located on page 5 of the Technical Support Document grossly misrepresents the SO2 PTE of engines D7 and D8. Assuming a fuel oil density of 7.5 lb/gal and a sulfur content of 0.8%, then the SO2 PTE of the engines would be o.132 tpy.

**Response to Comment 5:**

The source indicated that diesel engines D7 and D8 use the same fuel oil available to the turbines. The sulfur content of the fuel oil used in the turbines is limited to 0.17% by weight. As indicated in Appendix A, the aggregate $SO_2$ PTE (based on the fuel limit) of engines D7 and D8 is significantly less than one (1) ton per year. The following conditions were added to the permit as a result of this comment and the other D.2 conditions renumbered.

**D.2.2 Sulfur Content**

**The sulfur content of the fuel oil used by diesel engines D7 and D8 shall not exceed 0.17% sulfur by weight.**

D.2.~~2~~ **3** Preventive Maintenance Plan [326 IAC 2-7-5(13)]

**Compliance Monitoring Requirements [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]**

**D.2.4 Sulfur Content and Nitrogen Content**

**The sulfur content values for the #2 fuel oil shall be determined either by sampling on a semi-annual frequency or determined by sampling after each occasion that fuel is transferred to the storage tank from any other source. The latter requirement requires that after each addition of #2 fuel oil to the storage tank, sampling for sulfur content must be performed.**

**The sulfur content information obtained from this monitoring shall be used to document compliance with the limit stated in Condition D.2.2.**

D.2.~~3~~ **5** Record Keeping Requirements

(a) To document compliance with Condition D.2.1, the Permittee shall maintain records of fuel usage.

**(b) To document compliance with Condition D.2.2, the Permittee shall maintain records of the sulfur content monitoring data.**

(~~b~~ **c**) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

D.2.5 **6** Reporting Requirements

**Comment 6:**

Based on the limits contained in Condition D.1.1, the source is allowed to emit 461.8 tpy SO2 if the turbine T3 combusted only fuel oil. If the fuel oil has a density of approximately 7.5 lb/gal, then: 8025 x$10^6$ (cf gas) x 1/391 (gal oil/cf gas) x 7.5 (lb/gal) x 0.003 (lb S/lb oil) x 64/32 (lb SO2/ lb S) x (1/2000 ton/lb) = 461.8 tpy SO2. Again, the sulfur dioxide values and footnote (a) in the table located on page 5 of the Technical Support Document are grossly misrepresented.

**Response to Comment 6:**

The correct SO2 emission factor for turbines T1, T2, and T3 is 0.1717 lb/MMBtu when burning fuel oil. As indicated in Response to Comment 2, the updated fuel oil equivalency factor for T3 is 0.392 MMCF/kgal. The resulting limited potential to emit SO2 from turbine T3 when it combusts only fuel oil is equal to 242 tpy determined by the following equation: 8,003 (MMCF/yr) x 1/0.392 (kgal/MMCF) x 1000 (gal/kgal) x 138,123 (Btu/gal) x 1/1,000,000 (MMBtu/Btu) x 0.1717 (lb/MMBtu) x 1/2000 (ton/lb) = 242 tpy SO2. This potential to emit, when combined with the potential to emit from diesel engines D7 and D8 and the natural gas heater are less than 250 tons per year SO2. No changes have been made to the permit as a result of this comment.

**Comment 7:**

The $SO_2$ portions of permit 16149 are written about a volume of oil and a weight ratio of sulfur as a contaminant. Without a condition limiting the maximum weight per unit volume of oil, the permit is without meaning. As a result, IDEM must identify and control the maximum weight per gallon of oil by modifying Conditions D.1.5 and D.2.1 as appropriate.

**Response to Comment 7:**

IDEM understands that the quantity of $SO_2$ emitted from a source that combusts oil depends on the amount of sulfur present in the oil. The $SO_2$ emissions from the turbines and engines could vary if the source chose to combust fuel oil of higher density. However, the turbines and engines are designed to combust distillate fuel oil. Different suppliers provide grades of distillate fuel oil of negligible varying densities. As a result, a condition specifying the density of distillate fuel oil combusted is not required. No changes were made to the permit as a result of this comment.

**Comment 8:**

Condition D.2.1 mentions diesel fuel twice. If the oil is to be in conformance with "40 CFR 72.2 diesel fuel," then I request that it be cited explicitly. If such a distinction is not necessary, then I request that the phrase "diesel fuel" be removed from the permit as to leave it in the permit would be sufficiently deceptive and misleading as to constitute 40 CFR 70.7(f)(1)(iii), IC 13-15-7-2(3)(A), "inaccurate statements".

**Response to Comment 8:**

Condition D.2.1 has been modified, as follows, to clarify that the diesel engines combust fuel oil (Other changes are also shown that are a result of comments discussed elsewhere in this document):

D.2.1 Fuel Usage Limitations

The Permittee requests and accepts ~~diesel~~ fuel **oil** usage limits for diesel engines D7 and D8. The total ~~diesel~~ fuel **oil** usage for diesel engines D7 and D8 shall be limited to 2,200 gallons per twelve consecutive month period with compliance determined at the end of each month. This is equivalent to ~~0.24~~ **0.67** tons per year of $NO_x$ emissions.

**Response to Comment 10:**

The source is not required to determine compliance with CEMS. However, the source is required to monitor the fuel flow and ratio of water to fuel in the turbines. Pursuant to 40 CFR 75 Appendix D 2.1.6.1, the source must test and calibrate the fuel flow monitoring devices annually so that the devices have an attributable error of no greater than 2%. In addition, IDEM reserves the authority to check records required for compliance and if those records show that actual emissions are close to the respective emission limit, IDEM can decide to examine the records in greater detail to ensure compliance. No changes were made to the permit as a result of this comment.

# Indiana Department of Environmental Management
# Office of Air Quality

## Technical Support Document (TSD) for a Part 70 Significant Source Modification and Part 70 Significant Permit Modification

### Source Background and Description

| | |
|---|---|
| Source Name: | Indiana Municipal Power Agency |
| Source Location: | 6035 Park Road, Anderson, Indiana 46011 |
| County: | Madison |
| SIC Code: | 4911 |
| Operation Permit No.: | T095-12389-00051 |
| Operation Permit Issuance Date: | December 7, 2001 |
| Significant Source Modification No.: | 095-15883-00051 |
| Significant Permit Modification No.: | 095-16149-00051 |
| Permit Reviewer: | ERG/BS |

The Office of Air Quality (OAQ) has reviewed a modification application from Indiana Municipal Power Agency (IMPA) relating to:

(1) The construction of the following emission units and pollution control devices:

One (1) 84 MW simple cycle gas turbine, using natural gas as the primary fuel and #2 fuel oil as backup fuel, identified as T-3, using water injection for NOx control when fuel oil is used, and exhausting to stack S/V 5. When using natural gas, T-3 has a maximum heat input capacity of 858 MMBtu/hr. When using #2 fuel oil, T-3 has a maximum heat input capacity of 850 MMBtu/hr.

(2) An increase in the source-wide emissions limit from 100 tons per year to 250 tons per year per pollutant. The source has requested that a single maximum natural gas and fuel oil usage limit be placed on the two existing turbines (identified as T1 and T2) and the new turbine (T3). The 100 ton per year limit was voluntarily taken by the Permittee. This is being revised to 250 tons per year since the source is not 1 of 28 source categories.

(3) An increase in the existing diesel engines' (identified as D7 and D8) fuel usage from 1,099 gallons per year to 2,200 gallons per year in order to accommodate the addition of the 84 MW gas turbine and still maintain the source's PSD minor status.

### Existing Permitted Emission Units and Control Equipment

The following existing units have been included in this Technical Support Document because the addition of the 84 MW simple cycle gas turbine effects the limitations that apply to the existing units:

(a) Two (2) 38.7 MW simple cycle gas turbines using natural gas as the primary fuel with No. 2 fuel oil used as a backup, identified as T-1 and T-2, constructed in 1991, using a water injection system as control, exhausting to stacks, S/V 3 and S/V 4, respectively.

(b) Two (2) 630 horsepower diesel engines used for turbine start-up, identified as D7 and D8, constructed in 1991, exhausting at stacks, S/V 5 and S/V 6, respectively.

(c) Two (2) 300,000 gallon No. 2 fuel oil storage tanks, identified as FT10 and FT11.

The addition of the 84 MW simple cycle gas turbine has no effect on the limitations or requirements that apply to the fuel oil storage tanks. As a result, the fuel oil storage tanks are not discussed further.

**History**

On May 11, 1990, the Indiana Municipal Power Agency (IMPA) was issued CP-048-1841 to permit the construction of two (2) 38.7 MW natural gas and fuel oil fired simple cycle turbines, two (2) 630 hp diesel engines used for turbine start up, and two (2) 300,000 gallon fuel oil tanks. On December 12, 1996, IMPA was issued FESOP 095-5162-00051 for the existing equipment. On July 25, 2000, IMPA was issued an Acid Rain permit (AR 095-11900-00051) for the operation of the two (2) 38.7 MW natural gas-fired simple cycle turbines. On December 7, 2001, IMPA was issued a Part 70 operating permit (T095-12389-00051) for the operation of two (2) 38.7 MW natural gas and fuel oil fired simple cycle turbines, two (2) 630 hp diesel engines used for turbine start up, and two (2) 300,000 gallon fuel oil tanks. The Part 70 permit retained the 100 ton per year source-wide emission limit from the previous FESOP because the source (at that time) was not expected to generate emissions greater than 100 tons per year. On April 19, 2002, IDEM, OAQ received an application for a Significant Source Modification and a Significant Permit Modification to a Part 70 Permit. The application requested: 1) the addition of a 84 MW natural gas and fuel oil fired, simple cycle gas turbine (identified as T3); 2) an increase from the 100 tpy source wide emissions limit to the legally-afforded 250 tpy emissions limit to accommodate the addition of the 84 MW turbine; and 3) an increase in the existing diesel engines' (identified as D7 and D8) fuel usage to accommodate the addition of the 84 MW turbine.

**Enforcement Issue**

There are no enforcement actions pending.

**Stack Summary of New Units**

| Stack ID | Operation | Height (feet) | Dimensions (feet) | Flow Rate (acfm) | Temperature ($^0$F) |
|---|---|---|---|---|---|
| S/V 7 | electricity generation | 56 | rectangular: 1.8 x 2.0 | unknown | 1000 |

**Recommendation**

The staff recommends to the Commissioner that the Part 70 Significant Source Modification be approved. This recommendation is based on the following facts and conditions:

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant.

An application for the purposes of this review was received on April 19, 2002. Additional information was received on July 10 and July 22, 2002.

## Emission Calculations

See Appendix A (pages 1 through 3) of this document for detailed emissions calculations.

## Potential To Emit of Modification

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as "the maximum capacity of a stationary source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U. S. EPA."

This table reflects the PTE before controls based on the worst case emissions from the combustion of natural gas and fuel oil in the 84 MW simple cycle gas turbine, identified as T-3. Control equipment is not considered federally enforceable until it has been required in a federally enforceable permit.

| Pollutant | Potential To Emit (tons/year) |
|---|---|
| PM | 44.7 |
| PM-10 | 44.7 |
| $SO_2$ | 11.3 |
| VOC | 7.9 |
| CO | 229.3 |
| $NO_x$ | 654.5 |

| HAP | Potential To Emit (tons/year) |
|---|---|
| 1,3 Butadiene | 0.06 |
| Acetaldehyde | 0.15 |
| Acrolein | 0.024 |
| Benzene | 0.205 |
| Ethylbenzene | 0.12 |
| Formaldehyde | 2.668 |
| Naphthalene | 0.13 |
| PAH | 0.149 |
| Propylene Oxide | 0.109 |
| Toluene | 0.489 |
| Xylene | 0.241 |
| Nickel | 4.468 |
| Manganese | 1.266 |
| Phosphorus | 1.677 |
| Lead | 0.216 |
| Chromium | 0.175 |
| Antimony | 0.082 |
| Arsenic | 0.018 |
| TOTAL | 11.53 |

## Justification for Modification

The Part 70 Operating permit is being modified through a Part 70 Significant Source Modification and Significant Permit Modification. This modification is being performed pursuant to 326 IAC 2-

7-10.5(f)(4)(c) and 326 IAC 2-7-12(b)(D)(i) as the potential to emit PM, PM10, CO, and $NO_x$ is greater than 25 tons per year and the source is adjusting its federally-enforceable emissions limit. This modification does not qualify as a minor modification because the applicable NSPS (40 CFR Part 60 Subpart GG) is not the most stringent limitation as the source has accepted a fuel usage limit for the new and existing turbines to remain a PSD Minor Source.

**County Attainment Status**

The source is located in Madison County.

| Pollutant | Status |
|---|---|
| PM-10 | attainment |
| $SO_2$ | attainment |
| $NO_2$ | attainment |
| Ozone | attainment |
| CO | attainment |
| Lead | attainment |

(a) Volatile organic compounds (VOC) are precursors for the formation of ozone. Therefore, VOC emissions are considered when evaluating the rule applicability relating to the ozone standards. Madison County has been designated as attainment for ozone. Therefore, VOC emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration, 326 IAC 2-2.

(b) Madison County has been classified as attainment for all criteria pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration, 326 IAC 2-2.

(d) Fugitive Emissions
Since there are applicable New Source Performance Standards that were in effect on August 7, 1980 (40 CFR part 60 Subpart GG), fugitive emissions are counted toward determination of PSD applicability. Note that fugitive emissions are negligible.

**Source Status**

Existing Source PSD Definition (emissions after controls, based upon 8760 hours of operation per year at rated capacity and/or as otherwise limited). Note that the source was issued FESOP 095-5162-00051 on December 12, 1996. The source wide FESOP limits were carried through into the Part 70 permit 095-12389-00051 issued December 7, 2001.

| Pollutant | Emissions (tons/year) |
|---|---|
| PM | less than 100 |
| PM-10 | less than 100 |
| $SO_2$ | less than 100 |
| VOC | less than 100 |
| CO | less than 100 |
| NOx | less than 100 |

(a) This existing source is not a major stationary source because no attainment regulated pollutant is emitted at a rate of 250 tons per year or more, and it is not one of the 28 listed source categories. Note that the new and existing and turbines are simple cycle gas turbines, not steam turbines.

(b) These emissions are based upon the information provided in the Technical Support Document for the source's Part 70 permit, T095-12389-00051, issued December 7, 2001.

**Potential to Emit of Modification After Issuance**

The table below summarizes the potential to emit, reflecting all limits, of the significant emission units after controls. The control equipment is considered federally enforceable only after issuance of this Part 70 source modification. Note that the existing turbines are included in this table because the aggregate natural gas and fuel oil consumed by both the new and existing turbines are limited to render the requirements of 326 IAC 2-2 not applicable.

| Limited Potential to Emit (tons/year) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Process/facility | PM | PM-10 | $SO_2$ | VOC | CO | $NO_x$ | HAPs |
| Two (2) existing 38.7 MW simple cycle turbines (T1 and T2)[(a)] / One (1) new 84 MW simple cycle turbine (T3)[(a)] | 23.12 | 23.12 | 0.01 | 8.19 | Less than 249.7 | Less than 249.3 | 2.4 |
| Two (2) existing diesel engines [(b)] | 0.05 | 0.05 | 0.04 | 0.05 | 0.14 | 0.67 | Negl. |
| TOTAL | 5.19 | 5.19 | 2.23 | 1.68 | Less than 250 | Less than 250 | 2.4 |
| PSD Significance Level [(c)] | 250 | 250 | 250 | 250 | 250 | 250 | NA |

Negl. - Negligible

(a) The amount of natural gas consumed by the two existing turbines and one new turbine are limited to render the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration) not applicable. Since the emissions from the source will depend on the specific turbine and the type of fuel used, the natural gas limitation is modified with the use of an equivalence factor dependent on the operating scenario. The limited emissions presented in the table are from the combustion of natural gas because turbines utilize natural gas as their primary fuel; fuel oil is only used as a backup. See Appendix A for more details.

(b) The amount of fuel oil consumed by the diesel engines are limited to render the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration) not applicable. See Appendix A for more details.

(c) The existing Part 70 permit retained a 100 ton per year source-wide emission limit from a previously issued FESOP because the source (at that time) wanted to be a FESOP source. As a result, the PSD significance level for this modification is 250 tons per year.

This modification to an existing minor stationary source is not major because the source is retaining its PSD Minor status by limiting the fuel usage of the turbines (T1, T2, and T3) and diesel engines (D7 and D8) such that the respective pollutant emissions from those sources are less than 250 tons per year. Therefore, pursuant to 326 IAC 2-2, and 40 CFR 52.21, the PSD requirements do not apply.

**Federal Rule Applicability**

(a) Turbines T1, T2, and T3 are subject to the New Source Performance Standard (NSPS), 326 IAC 12, 40 CFR 60, Subpart GG (Standards of Performance for Stationary Gas Turbines). Therefore, the Permittee shall comply with the provisions of 40 CFR 60, Subpart GG, as follows:

(1) limit nitrogen oxides emissions, as required by 40 CFR 60.332, to:

$$STD = 0.0075 \frac{(14.4)}{Y} + F,$$

where STD = allowable $NO_x$ emissions (percent by volume at 15 percent oxygen on a dry basis).

(STD, for each turbine is equal to 0.0148% when combusting natural gas; STD, for each turbine is equal to 0.0094% when combusting fuel oil)

Y = manufacturer's rated heat rate at manufacturer's rated load (kilojoules per watt hour) or, actual measured heat rate based on lower heating value of fuel as measured at actual peck load for the facility. The value of Y shall not exceed 14.4 kilojoules per watt hour.

(For natural gas, Y = 11.06; For fuel oil, Y = 11.52)

F = $NO_x$ emission allowance for fuel-bound nitrogen as defined in paragraph (a)(3) of 40 CFR 60.332.

(For natural gas with a nitrogen content >0.25%, F = 0.005; For fuel oil with a nitrogen content <0.015%, F= 0)

(2) Limit sulfur dioxide emissions, as required by 40 CFR 60.333, to 0.015 percent by volume at 15 percent oxygen on a dry basis, or use natural gas fuel with a sulfur content less than or equal to 0.8 percent by weight;

(3) Install a continuous monitoring system to monitor and record the fuel consumption and the ratio of water to fuel being fired in the turbine, as required by 40 CFR 60.334(a);

(4) Determine compliance with the nitrogen oxides and sulfur dioxides standards in 40 CFR 60.332 and 40 CFR 60.333(a), per the requirements described in 40 CFR 60.335(c) Note that custom monitoring schedule procedures, approved by the EPA on April 5, 2001, apply to the natural gas and diesel fuel used at the site/source and are not specific to which turbine uses the fuel. According to the approval, IDEM and the EPA would need to be contacted if there is a change in fuel supply, such as a change in fuel quality. Since the fuel supply will not change, the custom schedule procedures apply to turbine T3 and do not need to be modified or changed for the to accommodate the addition of turbine T3;

(5) Monitor the sulfur content and nitrogen content of the fuel being fired in the turbine, as required by 40 CFR 60.334(b); and

(6) Report periods of excess emissions, as required by 40 CFR 60.334(c).

There are no other New Source Performance Standards (326 IAC 12 and 40 CFR Part 60) applicable to this facility.

(c) This facility is subject to the requirements of 40 CFR Part 72 through 40 CFR Part 80 (Acid Rain Program).

(d) There are no National Emission Standards for Hazardous Air Pollutants (NESHAP)(326 IAC 14 and 40 CFR Part 63) applicable to this source.

(e) Turbines T1, T2, and T3 are not subject to the provisions of 40 CFR Part 64, Compliance Assurance Monitoring (CAM). In order for this rule to apply, a specific emissions unit must meet three criteria for a given pollutant: 1) the unit is subject to an emission limitation or standard for the applicable regulated air pollutant, 2) the unit uses a control device to achieve compliance with any such emission limitation or standard, and, 3) the unit has potential precontrol device emissions of the applicable regulated air pollutant that are equal or greater than 100 percent of the amount required for a source to be classifies as a major source. The turbines are subject to 40 CFR Part 60 Subpart GG and have the potential to emit NOx greater than major source thresholds after the control device. However, pursuant to 40 CFR 64.2(a)(3), any source subject to 40 CFR Part 75 (Acid Rain) is exempt from 40 CFR Part 64 (CAM).

**State Rule Applicability - One (1) 84 MW simple cycle gas turbine**

326 IAC 2-2 (Prevention of Significant Deterioration)

Pursuant to F095-5162-00051, issued December 12, 1996, and T095-12389-00051, issued December 7, 2001, the total amount of natural gas and fuel oil consumed by turbines T1 and T2 were limited to 675 million cubic feet of gas and 3.36 million gallons of oil. Compliance with this limit, and a 1100 gallon fuel usage limitation placed on diesel engines D7 and D8, would limit the entire source's emissions to less than 100 tons per year. With the addition of turbine (T3), the source has requested to increase the source-wide emissions limit to the legally afforded 250 tons per year per pollutant to accommodate the addition of turbine T3 and remain a PSD minor source. See Appendix A for detailed emission calculations. As a result, the following limit shall apply to turbines T1, T2, and T3:

The total amount of natural gas equivalents consumed by turbines T1, T2, and T3 shall be limited to 8,025 million cubic feet of gas (MMCF) per twelve consecutive month period with compliance determined at the end of each month.

(a) For every one million cubic feet of gas (MMCF) consumed by turbine T3, the natural gas equivalent limit shall be reduced by one million cubic feet (MMCF).

(b) For every one million cubic feet of gas (MMCF) consumed by turbines T1 or T2, the natural gas equivalent limit shall be reduced by 2.132 million cubic feet.

(c) For every one thousand gallons of fuel oil (kgal) consumed by turbine T3, the natural gas equivalent limit shall be reduced by 0.391 million cubic feet.

(d) For every one thousand gallons of fuel oil (kgal) consumed by turbines T1 or T2, the natural gas equivalent limit shall be reduced by 0.533 million cubic feet.

This limit, in conjunction with the fuel limit on diesel engines D7 and D8 has been incorporated to limit the potential to emit nitrogen oxidizes ($NO_x$) and carbon monoxide (CO) to less than 250 tons per twelve consecutive month period.

Compliance with this limit will render the requirements of 326 IAC 2-2 and 40 CFR 52.21 (Prevention of Significant Deterioration) not applicable.

326 IAC 2-4.1 (Hazardous Air Pollutants)

Turbines T1, T2 and T3 are not subject to the requirements of 326 IAC 2-4.1 because they each have the potential to emit less than 10 tons per year of any single HAP, and less than 25 tons per year of any combination of HAPs.

326 IAC 5-1 (Opacity Limitations)

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Alternative Opacity Limitations), opacity from turbines T1, T2, and T3 shall meet the following, unless otherwise stated in this permit:

(a) Opacity shall not exceed an average of forty percent (40%) any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.

(b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

326 IAC 6 (Particulate Matter Emission Limitations)

Turbines T1, T2 and T3 are not subject to any 326 IAC 6 rules because it is not a source of indirect heating and does not operate as part of a manufacturing process.

326 IAC 7-1.1 (Sulfur Dioxide Emission Limitations)

Pursuant to 326 IAC 7-1.1, the sulfur dioxide emissions from turbines T1, T2 and T3 shall be limited to 0.5 pounds per MMBtu heat input when combusting distillate fuel oil.

Pursuant to CP 048-1841, issued May 11, 1990, the sulfur content of any fuel (natural gas or oil) used in turbines T1 and T2 to 0.3% sulfur by weight. The source has agreed to limit the sulfur content of the fuel used in turbine T3 to 0.3% sulfur by weight as well. Pursuant to 326 IAC 2-7-24, compliance with this limitation shall satisfy the requirements of 40 CFR 60.333(b) and 326 IAC 7-1.1.

326 IAC 8 (Volatile Organic Compounds)

Turbines T1, T2, and T3 are not subject to any 326 IAC 8 rules because they each do not have the potential to emit greater than 25 tons per year VOC or engage in any operations specifically limited by the rule.

**State Rule Applicability - Diesel Engines D7 and D8**

326 IAC 2-2 (Prevention of Significant Deterioration)

The total amount of fuel oil consumed by diesel engines D7 and D8 shall be limited to 2,200 gallons per twelve consecutive month period. This limit is structured such that, when including the combined limited emissions from the turbines, the total NOx and CO emissions from the source do not exceed 250 tons per twelve (12) consecutive month period.

Compliance with this limit will render the requirements of 326 IAC 2-2 (Prevention of Significant Deterioration) and 40 CFR 52.21 not applicable.

326 IAC 6 (Particulate Matter Emission Limitations)

Diesel engines D7 and D8 are not subject to any 326 IAC 6 rules because they are not a source of indirect heating and do not operate as part of a manufacturing process.

326 IAC 7-1.1 (Sulfur Dioxide Emission Limitations)

Diesel engines D7 and D8 each have the potential to emit less than 25 tons per year sulfur dioxide. Therefore, engines D7 and D8 are not subject to the requirements of 326 IAC 7-1.1.

**Compliance Testing**

The Permittee shall demonstrate compliance with the sulfur dioxide ($SO_2$) limitations by implementing the custom monitoring schedule procedures approved by the EPA on April 5, 2001 and by conducting semi-annual sampling and fuel monitoring. As a result, testing is not required for sulfur dioxide.

The Permittee shall demonstrate compliance with the nitrogen oxides ($NO_x$) limitations by implementing the custom monitoring schedule procedures approved by the EPA on April 5, 2001 and by operating a continuous monitoring system to monitor the fuel consumption and ratio of water to fuel being fired in the turbine. As a result, testing is not required for nitrogen oxides.

**Compliance Requirements**

Permits issued under 326 IAC 2-7 are required to ensure that sources can demonstrate compliance with applicable state and federal rules on a more or less continuous basis. All state and federal rules contain compliance provisions, however, these provisions do not always fulfill the requirement for a more or less continuous demonstration. When this occurs IDEM, OAQ, in conjunction with the source, must develop specific conditions to satisfy 326 IAC 2-7-5. As a result, compliance requirements are divided into two sections: Compliance Determination Requirements and Compliance Monitoring Requirements.

Compliance Determination Requirements in Section D of the permit are those conditions that are found more or less directly within state and federal rules and the violation of which serves as grounds for enforcement action. If these conditions are not sufficient to demonstrate continuous compliance, they will be supplemented with Compliance Monitoring Requirements, also Section D of the permit. Unlike Compliance Determination Requirements, failure to meet Compliance Monitoring conditions would serve as a trigger for corrective actions and not grounds for enforcement action. However, a violation in relation to a compliance monitoring condition will arise through a source's failure to take the appropriate corrective actions within a specific time period.

Turbine T1, T2, and T3 applicable compliance monitoring conditions as specified below:

(a) Compliance shall be determined utilizing the following option when combusting <u>fuel oil</u>:

Pursuant to 40 CFR 60.334, Subpart GG, the Permittee shall monitor the nitrogen and sulfur content of the fuel being fired in the turbine. Pursuant to 40 CFR 60.334 (b)(2), the custom monitoring schedule procedures approved by EPA on April 05, 2001 shall be accepted. Monitoring of these values shall be conducted such that the nitrogen and sulfur content values for the #2 fuel oil shall be determined either by sampling on a semi-annual frequency or determined by sampling after each occasion that fuel is transferred to the storage tank from any other source. The latter requirement requires that after each addition of #2 fuel oil to the storage tank, sampling for nitrogen and sulfur content must be performed.

(b) Compliance shall be determined utilizing the following option when combusting <u>natural gas</u>:

Pursuant to 40 CFR 60.334, Subpart GG, the Permittee shall monitor the nitrogen and sulfur content of the fuel being fired in the turbine. Pursuant to 40 CFR 60.334 (b)(2), the custom monitoring schedule procedures approved by EPA on April 05, 2001 shall be accepted. Monitoring of these values shall be conducted as follows:

(1) the nitrogen content monitoring requirements pursuant to 40 CFR 60.334 (b) for the natural gas being fired in the gas turbines are waived since there is no fuel-bound nitrogen in pipeline quality natural gas.

(2) the sulfur content values for the natural gas shall be monitored on a semi-annual frequency. The sulfur content of the natural gas being fired in the gas turbines shall be determined by the ASTM methods D 1072-80, D 3031-81, D 4084-82, or D 3246-81. The applicable ranges of some ASTM methods mentioned are not adequate to measure the levels of sulfur in some fuel gases. Dilution of samples before analysis (with verification of the dilution ratio) may be used, subject to the Approval of the Administrator.

(c) Visible emission notations of the turbines' (T1, T2, and T3) stack exhaust shall be performed once per shift during normal daylight operations when combusting #2 fuel oil. A trained employee shall record whether emissions are normal or abnormal. For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation, not counting startup or shut down time. In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions. A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process. The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when an abnormal emission is observed.

These monitoring conditions are necessary because to ensure compliance with 326 IAC 12 and 40 CFR Part 60 Subpart GG.

**Proposed Changes**

A.2 Emission Units and Pollution Control Equipment Summary [326 IAC 2-7-4(c)(3)] [326 IAC 2-7-5(15)]

This stationary source consists of the following emission units and pollution control devices:

(a) Two (2) 38.7 megawatt (net) simple cycle gas turbines using natural gas as the primary fuel with No. 2 fuel oil used as a backup identified as T1 and T2, and using a water injection system as control, with each turbine exhausting to stacks, identified as S/V 3 and S/V 4, respectively.

**(b) One (1) 84 megawatt (MW) simple cycle gas turbine, using natural gas as the primary fuel and #2 fuel oil as backup fuel, identified as T3, using water injection for NOx control when fuel oil is used, and exhausting to stack S/V 7. When using natural gas, T3 has a maximum heat input capacity of 858 MMBtu/hr. When using #2 fuel oil, T3 has a maximum heat input capacity of 850 MMBtu/hr.**

(c) Two (2) 630 horsepower diesel engines used for turbine start-up, identified as D7 and D8, each exhausting at stacks, identified as S/V 5 and S/V 6, respectively.

(d) Two (2) 300,000 gallon No. 2 fuel oil storage tanks, identified as FT10 and FT11.

**SECTION D.1 FACILITY OPERATION CONDITIONS**

**Facility Description [326 IAC 2-7-5(15)]:**

(a) Two (2) 38.7 megawatt (net) simple cycle gas turbines using natural gas as the primary fuel with No. 2 fuel oil used as a backup identified as T1 and T2, and using a water injection system as control, with each turbine exhausting to stacks, identified as S/V 3 and S/V 4, respectively.

**(b) One (1) 84 megawatt (MW) simple cycle gas turbine, using natural gas as the primary fuel and #2 fuel oil as backup fuel, identified as T-3, using water injection for NOx control when fuel oil is used, and exhausting to stack S/V 7. When using natural gas, T-3 has a maximum heat input capacity of 858 MMBtu/hr. When using #2 fuel oil, T-3 has a maximum heat input capacity of 850 MMBtu/hr;**

(The information describing the process contained in this facility description box is descriptive information and does not constitute enforceable conditions.)

**Emission Limitations and Standards [326 IAC 2-7-5(1)]**

**D.1.1 Fuel Usage Limitation - Prevention of Significant Deterioration [326 IAC 2-2][40 CFR 52.21]**

**The total amount of natural gas equivalents consumed by turbines T1, T2, and T3 shall be limited to 8,025 million cubic feet of gas (MMCF) per twelve consecutive month period with compliance determined at the end of each month.**

**(a) For every one million cubic feet of gas (MMCF) consumed by turbine T3, the natural gas equivalent limit shall be reduced by one million cubic feet (MMCF).**

**(b) For every one million cubic feet of gas (MMCF) consumed by turbines T1 or T2, the natural gas equivalent limit shall be reduced by 2.132 million cubic feet.**

**(c) For every one thousand gallons of fuel oil (kgal) consumed by turbine T3, the natural gas equivalent limit shall be reduced by 0.391 million cubic feet.**

**(d) For every one thousand gallons of fuel oil (kgal) consumed by turbines T1 or T2, the natural gas equivalent limit shall be reduced by 0.533 million cubic feet.**

**This limit, in conjunction with the fuel limit on diesel engines D7 and D8 has been incorporated to limit the potential to emit nitrogen oxidizes ($NO_x$) and carbon monoxide (CO) to less than 250 tons per twelve consecutive month period.**

**Compliance with this limit will render the requirements of 326 IAC 2-2 and 40 CFR 52.21 (Prevention of Significant Deterioration) not applicable.**

~~D.1.1 Fuel Usage Limitations~~

~~The total combined fuel use in turbines T1 and T2 shall be limited as follows:~~

~~(a) When natural gas is the only fuel used, the fuel limit is 675.0 million standard cubic feet (MMSCF) per 365 day rolling total.~~

~~(b) When No. 2 fuel oil is the only fuel used, the fuel limit is 3.36 million gallons per 365 day rolling total.~~

~~(c) Fuel limit when both natural gas and No. 2 fuel oil are used during the 365 day period: 75.0 million standard cubic feet (MMCF) natural gas and 3.36 million gallons (MMgal) of No. 2 fuel oil per 365 day rolling total.~~

~~These limits restrict the potential to emit of sulfur dioxide (SO2), particulate matter (PM), particulate matter less than ten (10) microns (PM10), nitrogen oxides (NOx) and carbon monoxide (CO) to less than 100 tons per year. Thus, 326 IAC 2-2 does not apply.~~

**D.1.4 NOx Emissions Limitations**

**(a)** Pursuant to CP-048-1841, issued May 11, 1990, the nitrogen oxide ($NO_x$) emissions from ~~two (2) simple cycle gas~~ turbines ~~(~~T1 and T2~~)~~ shall be limited to 42 parts per million dry volume (ppmdv) at 15 percent oxygen when combusting natural gas and 65 parts per million dry volume (ppmdv) at 15 percent oxygen when combusting fuel oil. [These limits are more stringent than the NSPS standards contained in 326 IAC 12 and 40 CFR 60.332 (a)(1) and (b)].

**(b) In order to ensure compliance with 40 CFR 60.332, the nitrogen oxide ($NO_x$) emissions from turbine T3 shall be limited to 42 parts per million dry volume (ppmdv) at 15 percent oxygen when combusting natural gas and 65 parts per million dry volume (ppmdv) at 15 percent oxygen when combusting fuel oil. [These limits are more stringent than the NSPS standards contained in 326 IAC 12 and 40 CFR 60.332 (a)(1) and (b)].**

D.1.5 Sulfur Dioxide [326 IAC 2-7-24] [40 CFR 60.333(b)] [326 IAC 7-1.1]

**(a)** Pursuant to Construction Permit 048-1841, issued on May 11, 1990, the sulfur content of any fuel ~~used in the turbines~~ (natural gas or oil) **used in turbines T1 and T2** shall be limited to 0.3% sulfur by weight. Pursuant to 326 IAC 2-7-24, compliance with this limitation shall satisfy the requirements of 40 CFR 60.333(b) and 326 IAC 7-1.1.

**(b) In order to ensure compliance with 40 CFR 60.333, the sulfur content of any fuel (natural gas or oil) used in turbine T3 shall be limited to 0.3% sulfur by weight. Pursuant to 326 IAC 2-7-24, compliance with this limitation shall satisfy the requirements of 40 CFR 60.333(b) and 326 IAC 7-1.1.**

D.1.6 Opacity

(a) Pursuant to Construction Permit 048-1841, issued on May 11, 1990, **and in order to ensure compliance with 326 IAC 5-1,** visible emissions from the combustion turbine stacks, S/V 3 and S/V 4, shall be limited to twenty percent (20%) opacity.

**(b) In order to ensure compliance with 326 IAC 5-1, visible emissions from combustion turbine stack S/V 7 shall be limited to twenty percent (20%) opacity.**

D.1.7 Preventive Maintenance Plan [326 IAC 1-6-3]

A Preventive Maintenance Plan, in accordance with Section B - Preventive Maintenance Plan, of this permit, is required for **these facilities** ~~this facility~~ and any control device**s**.

D.1.8 NSPS Compliance Provisions [40 CFR Part 60, Subpart GG]

(a) Pursuant to 40 CFR 60, Subpart GG and the custom monitoring schedule procedures approved by EPA on April 05, 2001, when combusting natural gas, the turbine**s** shall comply with the sulfur dioxide emissions standard by using pipeline supplied natural gas.

(b) No alternate fuel burned in the gas turbine**s** shall contain sulfur in excess of 0.8 percent by weight.

D.1.9 Compliance Requirements (Stationary Gas Turbines) [40 CFR Part 60, Subpart GG]

Pursuant to 40 CFR Part 60, Subpart GG (Stationary Gas Turbines), the Permittee shall monitor and record the fuel consumption and the ratio of water to fuel being fired in the turbine**s** as follows:

(a) Install a continuous monitoring system to monitor the fuel consumption and the ratio of water to fuel being fired in the turbine**s**, as required by 40 CFR 60.334(a).

D.1.10 Sulfur Content and Nitrogen Content [326 IAC 12] [40 CFR Part 60, Subpart GG]

Compliance shall be determined utilizing the following option when combusting <u>fuel oil</u>:

Pursuant to 40 CFR 60.334, Subpart GG, the Permittee shall monitor the nitrogen and sulfur content of the fuel being fired in ~~the~~ **each** turbine. Pursuant to 40 CFR 60.334 (b)(2), the custom monitoring schedule procedures approved by EPA on April 05, 2001 shall be accepted. Monitoring of these values shall be conducted as follows:

(a) the nitrogen and sulfur content values for the #2 fuel oil shall be determined either by sampling on a semi-annual frequency or determined by sampling after each occasion that fuel is transferred to the storage tank from any other source. The latter requirement requires that after each addition of #2 fuel oil to the storage tank, sampling for nitrogen and sulfur content must be performed.

The sulfur and nitrogen content information obtained from this monitoring shall be used to document compliance with the limits stated in Conditions D.1.1, D.1.3, D.1.4, and D.1.5.

D.1.11 Sulfur Content and Nitrogen Content [326 IAC 12] [40 CFR Part 60, Subpart GG]

Compliance shall be determined utilizing the following option when combusting natural gas:

Pursuant to 40 CFR 60.334, Subpart GG, the Permittee shall monitor the nitrogen and sulfur content of the fuel being fired in the turbine**s**. Pursuant to 40 CFR 60.334 (b)(2), the custom monitoring schedule procedures approved by EPA on April 05, 2001 shall be accepted. Monitoring of these values shall be conducted as follows:

D.1.12 Visible Emissions Notations

(a) Visible emission notations of turbines T1**,** ~~and~~ T2**, and T3** stack exhausts shall be performed once per shift during normal daylight operations when combusting #2 fuel oil. A trained employee shall record whether emissions are normal or abnormal.

(b) For processes operated continuously, "normal" means those conditions prevailing, or expected to prevail, eighty percent (80%) of the time the process is in operation, not counting startup or shut down time.

(c) In the case of batch or discontinuous operations, readings shall be taken during that part of the operation that would normally be expected to cause the greatest emissions.

(d) A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal visible emissions for that specific process.

(e) The Compliance Response Plan for this unit shall contain troubleshooting contingency and response steps for when an abnormal emission is observed.

D.1.13 Record Keeping Requirements

(a) To document compliance with Conditions ~~D.1.1, D.1.3, D.1.4,~~ D.1.5, ~~D.1.6, D.1.7, D.1.9,~~ D.1.10, and D.1.11, the Permittee shall maintain records **of the sulfur content monitoring data.** ~~in accordance with (1) through (2) below.~~ Records **shall be taken pursuant to 40 CFR 60.334.** ~~maintained for (2) shall be taken according to Conditions D.1.10 and D.1.11 and shall be complete and sufficient to establish compliance with the sulfur and nitrogen content limits established in Conditions D.1.1, D.1.3, D.1.4, and D.1.5.~~

~~(1) Data and results from the most recent stack test; and (2) All fuel nitrogen content and sulfur content monitoring data.~~
~~(2) All fuel nitrogen content and sulfur content monitoring data.~~

(c) To document compliance with Condition D.1.9, the Permittee shall maintain records of fuel consumption and the ratio of water to fuel being fired in the turbine**s**.

**Emission Limitations and Standards [326 IAC 2-7-5(1)]**

D.2.1 Fuel Usage Limitations

The Permittee requests and accepts diesel fuel usage limits for diesel engines D7 and D8. The total diesel fuel usage for diesel engines D7 and D8 shall be limited to ~~1,099~~ **2,200** gallons per ~~365 day rolling total~~ **twelve consecutive month period with compliance determined at the end of each month**. This is equivalent to 0.24 tons per year of NOx emissions.

## ~~INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT~~
## ~~OFFICE OF AIR QUALITY~~
## ~~COMPLIANCE DATA SECTION~~
## ~~and the~~
## ~~Anderson Office of Air Management~~

~~Part 70 Monthly Report~~

~~Source Name: Indiana Municipal Power Agency~~
~~Source Address: 6035 Park Road, Anderson, Indiana 46001~~
~~Mailing Address: 11610 North College Avenue, Carmel, Indiana 46032~~
~~Part 70 Permit No.: T095-12389-00051~~
~~Facility: Gas Turbines (T1 and T2)~~
~~Parameter: Fuel Usage~~
~~Limit: The total combined fuel use in gas turbines T1 and T2 shall be limited as follows:~~
~~(1) When natural gas is the only fuel used, the fuel limit is 675.0 million standard cubic feet (MMSCF) per 365 day rolling total.~~
~~(2) When No. 2 fuel oil is the only fuel used, the fuel limit is 3.36 million gallons per 365 day rolling total.~~
~~(3) Fuel limit when both natural gas and No. 2 fuel oil are used during the 365 day period: 675.0 million standard cubic feet (MMCF) natural gas and 3.36 million gallons (MMgal) of No. 2 fuel oil per 365 day rolling total.~~

~~**Month:**~~ ______________ ~~**Year:**~~ ______________

| ~~Day~~ | ~~Fuel Type a) Nat. Gas b) #2 Fuel oil~~ | ~~Fuel usage a) (CF/day) b) (Gal/day)~~ | ~~Usage for previous 365 day period~~ | ~~Water to fuel ratio~~ | ~~Sulfur content~~ | ~~Day~~ | ~~Fuel Type a) Nat. Gas b) #2 Fuel oil~~ | ~~Fuel usage a) (CF/day) b) (Gal/day)~~ | ~~Usage for previous 365 day period~~ | ~~Water to fuel ratio~~ | ~~Sulfur content~~ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ~~1~~ | | | | | | ~~17~~ | | | | | |
| ~~2~~ | | | | | | ~~18~~ | | | | | |
| ~~3~~ | | | | | | ~~19~~ | | | | | |
| ~~4~~ | | | | | | ~~20~~ | | | | | |
| ~~5~~ | | | | | | ~~21~~ | | | | | |
| ~~6~~ | | | | | | ~~22~~ | | | | | |
| ~~7~~ | | | | | | ~~23~~ | | | | | |
| ~~8~~ | | | | | | ~~24~~ | | | | | |
| ~~9~~ | | | | | | ~~25~~ | | | | | |
| ~~10~~ | | | | | | ~~26~~ | | | | | |
| ~~11~~ | | | | | | ~~27~~ | | | | | |
| ~~12~~ | | | | | | ~~28~~ | | | | | |
| ~~13~~ | | | | | | ~~29~~ | | | | | |
| ~~14~~ | | | | | | ~~30~~ | | | | | |
| ~~15~~ | | | | | | ~~31~~ | | | | | |
| ~~16~~ | | | | | | | | | | | |

~~9 No deviation occurred in this month.~~
~~9 Deviation/s occurred in this month.~~
~~Deviation has been reported on:~~ ______________
~~Submitted by:~~ ______________
~~Title/Position:~~ ______________
~~Signature:~~ ______________
~~Date:~~ ______________

~~Attach a signed certification to complete this report.~~

# Indiana Department of Environmental Management
# Office of Air Management
# Compliance Data Section

## Quarterly Report

**Source Name:** Indiana Municipal Power Agency
**Source Address:** 6035 Park Road, Anderson, Indiana 46011
**Mailing Address:** 11610 N. College Avenue, Carmel, IN 46032
**Part 70 Permit No.:** T095-12389-00051
**Facility:** Turbines T1, T2, and T3
**Pollutant:** $NO_x$, CO
**Parameter:** Less than 1,526 MMCF natural gas per twelve (12) consecutive month period
For every one (1) thousand gallons (kgal) of fuel oil consumed by the turbines, the natural gas usage limit shall be reduced by 0.101 million cubic feet.

**Parameter:** Less than 8,025 MMCF natural gas equivalents per twelve (12) consecutive month period
For every one million cubic feet of gas (MMCF) consumed by turbine T3, the natural gas equivalent limit shall be reduced by one million cubic feet (MMCF).
For every one million cubic feet of gas (MMCF) consumed by turbines T1 or T2, the natural gas equivalent limit shall be reduced by 2.132 million cubic feet.
For every one thousand gallons of fuel oil (kgal) consumed by turbine T3, the natural gas equivalent limit shall be reduced by 0.391 million cubic feet.
For every one thousand gallons of fuel oil (kgal) consumed by turbines T1 or T2, the natural gas equivalent limit shall be reduced by 0.533 million cubic feet.

**Year: ____________**

| Month | Natural Gas Usage This Month (MMCF) | | | Fuel Oil Usage This Month (kgal) | | | Natural Gas Usage for Past 11 Months (MMCF) | | | Fuel Oil Usage for Past 11 Months (kgal) | | | Total Natural Gas equivalents used for the past 12 Month Period (MMCF) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | T1 | T2 | T3 | T1 | T2 | T3 | T1 | T2 | T3 | T1 | T2 | T3 | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |

**Submitted by:** ____________________________

**Title/Position:** ____________________________

**Signature:** ____________________________

**Date:** ____________________________

**Phone:** ____________________________

**Attach a signed certification to complete this report.**

# Indiana Department of Environmental Management
# Office of Air Quality
# Compliance Data Section
## and the
## Anderson Office of Air Management

## Quarterly Report

**Source Name:** Indiana Municipal Power Agency
**Source Address:** 6035 Park Road, Anderson, Indiana 46011
**Mailing Address:** 11610 N. College Avenue, Carmel, IN 46032
**Part 70 Permit No.:** T095-12389-00051
**Facility:** Diesel Engines D7 and D8
**Pollutant:** $NO_x$, CO
**Parameter:** Less than 2,200 gal fuel oil per twelve (12) consecutive month period

**Year:** ____________

| Month | Fuel Oil Usage This Month (kgal) | Fuel Oil Usage for Past 11 Months (kgal) | Fuel Oil Usage for Previous 12 Month Period (kgal) |
|---|---|---|---|
| | | | |
| | | | |
| | | | |

**Submitted by:** ____________________________
**Title/Position:** ____________________________
**Signature:** ____________________________
**Date:** ____________________________
**Phone:** ____________________________

**Attach a signed certification to complete this report.**

## Conclusion

The construction of this proposed modification shall be subject to the conditions of the attached proposed Part 70 Significant Source Modification No. 095-15883-00051, and the operation of the equipment shall be subject to the attached Significant Permit Modification No. 095-16149-00051.